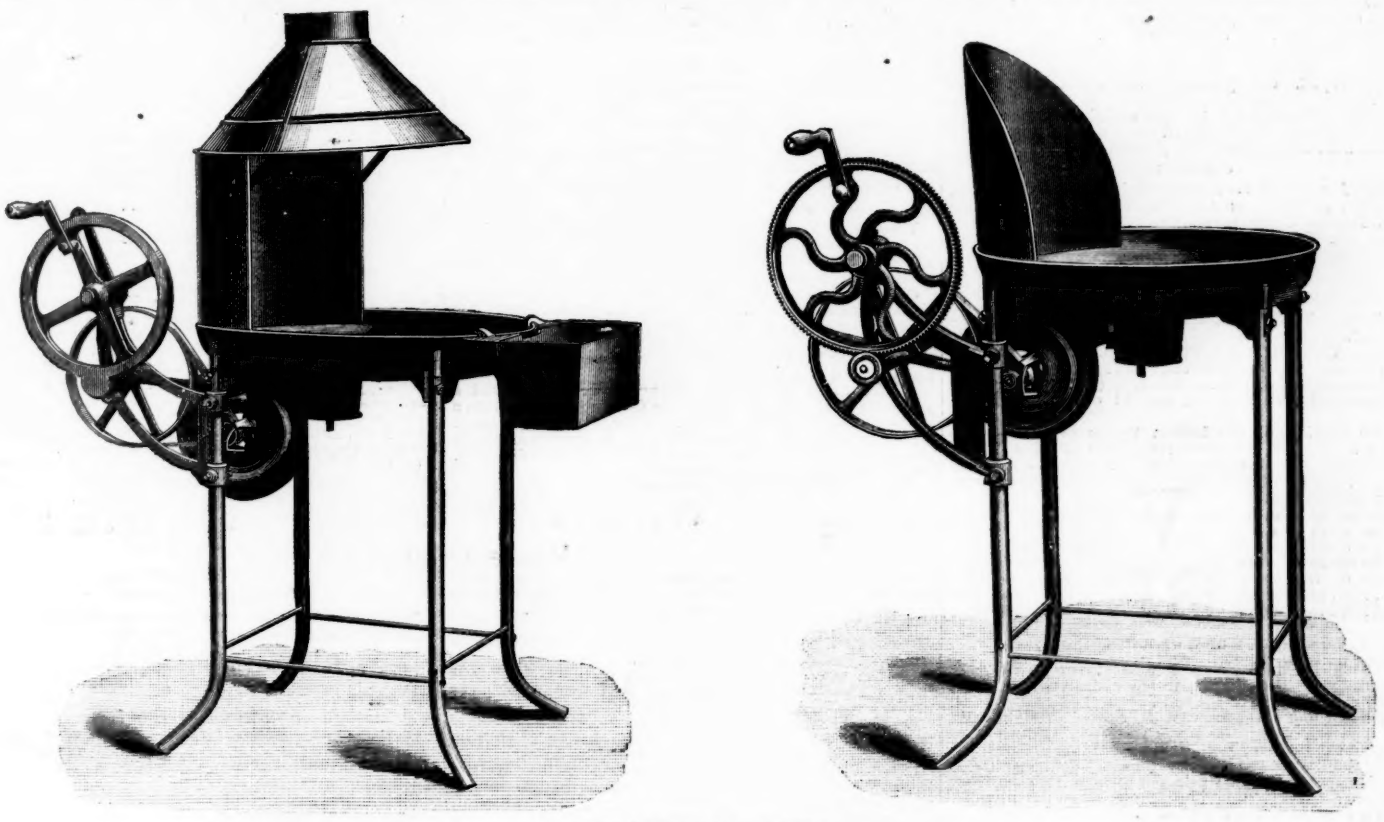
RAILROAD GAZETTE

FRIDAY, AUGUST 24.

Watson's Portable Forge.

The engravings herewith represent two different patterns of portable forges, which, among others, were exhibited at the Chicago Exposition of Railway Appliances by the Cleveland Steam Gauge Company, which is the manufacturer of these implements. Those who have used appliances of this kind will bear testimony to their convenience, and know how much work is often facilitated by their ability to move a forge about readily and put it in the most convenient position.

But little need be said to explain the engravings. Each of the forges represented has a small rotary blower underneath, which is operated by a hand crank and suitable gearing, as clearly shown in the illustrations. All the details of these implements have been carefully worked out so as to make them convenient, light and durable. The address of the company which manufactures them is Cleveland, Ohio.



WATSON PORTABLE FORGES.

Manufactured by the CLEVELAND STEAM GAUGE CO., *Cleveland, Ohio.*

Train Accidents in July.

The following accidents are included in our record for the month of July:

COLLISIONS.

REAR.

On the morning of the 4th a passenger train on the International & Great Northern road ran into the rear of a freight which had stopped near Austin, Tex., damaging several cars.

On the evening of the 4th a special passenger train on the Central Pacific road ran into a local passenger train in Oakland, Cal., damaging two cars and injuring four passengers. It is said that the signalman had allowed his lamp to go out, and had left his post to light it.

Very early on the morning of the 7th a freight train on the Pittsburgh, Cincinnati & St. Louis road ran into a preceding freight which had stopped at Spring Valley, O. The engine and 17 cars were wrecked, and four trainmen hurt The first train had sent no signal back.

On the evening of the 8th a freight train on the St. Louis, Iron Mountain & Southern road ran into the rear of a preceding freight which had stopped at Walnut Ridge, Ark. The engine and 17 cars were damaged and the engineer hurt.

On the morning of the 10th a passenger train on the Rensselaer & Sarotoga road ran over a misplaced switch and into a shifting engine standing on a siding in Mechanicsville, N. Y., doing some damage.

On the morning of the 11th a freight train on the Albany & Susquehanna road ran into the rear of a ballast train near Bainbridge, N. Y., wrecking several cars and injuring 6 laborers.

On the night of the 11th there was a butting collision between a freight and a special passenger train on the Grand Trunk road near London, Ont. Both engines and several cars were damaged and two trainmen hurt.

On the morning of the 12th an engine of a freight train on the Louisville & Nashville road broke loose for some unknown reason in Nashville, Ill., and ran into a lot of cars on a siding, wrecking two of them.

On the morning of the 13th a freight train on the New York Central & Hudson River road broke in two in Schenectady, N. Y., and the rear section ran into the forward one, wrecking several cars and forcing two of them over upon the adjoining passenger track.

A minute later a passenger train ran into these two cars, completely wrecking them and damaging the engine. The engineer was badly hurt.

On the evening of the 16th a passenger train on the Central Vermont road ran into another passenger train, which had stopped at West Hartford, Vt. Both engines were damaged, one of them being completely wrecked.

On the morning of the 17th a passenger train on the Texas & Pacific road ran into a freight train, part of which had just been wrecked by the breaking down of a bridge near Texarkana, Tex. An engine and several cars were wrecked, the engineer and a passenger hurt. The freight appears to have had no signal out.

On the afternoon of the 17th as the engine of a freight train on the Asthabula & Pittsburgh road was backing up to its train at Hilltown, Pa., the engineer was unable to close the throttle for some reason, and it struck the train with great violence, wrecking the tender and several cars, and injuring the engineer and fireman.

On the evening of the 17th a freight train on the Texas & Pacific road ran into a preceding freight at Arlington, Tex., wrecking two cars.

On the morning of the 23d a freight train on the Central Railroad, of Georgia, ran into the rear of another freight which had stopped in Atlanta, Ga. The engine was damaged, three cars wrecked and a lot of watermelons smashed. A signal was given to the second train, but it was so close to the first that it could not be stopped.

On the evening of the 24th a helping engine on the Delaware, Lackawanna & Western road was detached from a long passenger train, and run upon a siding at Perkinsville, N. Y. In some unexplained way the helper was started again, and ran through the siding and into the train, damaging two cars.

On the evening of the 25th a passenger train on the Hartford & Connecticut Valley road ran into two freight cars which had been left on the main track in Hartford, Conn., doing a little damage.

On the night of the 25th a freight train on the Cincinnati, Indianapolis, St. Louis & Chicago road broke into four sections near Zionsville, Ind., and three of the sections afterward came together, piling up 12 loaded cars in a very troublesome wreck. A brakeman was hurt.

On the morning of the 26th a freight train on the New York, Lake Erie & Western road ran into a preceding freight near Union, N. Y., damaging the caboose. There was a dense fog at the time.

Flags were sent back and the third, fourth and fifth sections of the train were stopped in time, but the sixth section ran into the fifth, wrecking the caboose.

On the night of the 26th a freight train on the Pennsylvania Railroad ran into another freight which was crossing over the main track at the junction of the Harsimus Cove Branch in Jersey City, N. J. An engine and 12 box cars were wrecked. The first train had a pusher on the rear end and its engineer failed to hear the signal from the forward engineer to stop. The signals were properly set.

On the night of the 27th a passenger train on the Lake Ontario Division of the Rome, Watertown & Ogdensburg road struck a box car which had been, it is said, blown out of a siding upon the main track at Carlyon, N. Y. The train was a heavy one, consisting of two locomotives, a baggage car, smoking car, passenger coach and 8 sleeping cars, which were well filled with passengers returning from the Thousand Islands. The freight car and the first engine went down a bank, the second engine upset, the baggage and smoking cars following it off the track, while the passenger coach and first and second sleepers, which were old, light cars, were forced into each other by the momentum of the heavy Wagner cars behind them, and piled up together in a terrible wreck. A sleeping-car porter and 22 passengers were killed outright, two passengers were fatally hurt, a trainman and 28 passengers badly hurt, besides several others slightly bruised. If, as is reported, the box car had the brakes properly set and was moved entirely by the great force of wind, the accident could hardly have been avoided, as the night was very dark and there had been a thunderstorm just before. This is the worst accident of the year, and on a road from which very few are reported. The coroner's jury found that the brakes on the box car could not have been set, and blamed the station agent for not seeing that they were in proper position.

Very early on the morning of the 28th a passenger train on the Chicago, Burlington & Quincy road ran over a misplaced switch and into a freight train standing on a siding at Vermont, Ill. The caboose was wrecked and the front end of the engine crushed in. The fireman was hurt and three trainmen in the caboose were fatally scalded by the escaping steam.

On the morning of the 28th a passenger train on the Lake Shore & Michigan Southern road ran over a misplaced switch and into a freight train standing on a siding at Harbor Creek, O. The caboose was wrecked and the engine damaged. The fireman jumped and was hurt, and two brakemen in the caboose were badly scalded by steam from the engine.

On the morning of the 29th a passenger train on the Central Vermont road ran into a preceding freight train near Colchester, Vt. The engine was damaged, two freight cars wrecked and the engineer hurt.

On the afternoon of the 30th a wild engine on the Boston, Hoosac Tunnel & Western road ran into the rear of a freight train which had been stopped by a flag near Stillwater, N. Y. Several cars were damaged and the road blocked four hours.

BUTTING.

Very early on the morning of the 1st a coal train with a passenger car attached on the Rochester & Pittsburgh road broke in two near Rassela-, Pa., and the detached section ran back down the grade at a high speed and into the head of a following freight train. The engine was badly broken and the passenger car, as well as a number of coal cars, piled up on top of it in a bad wreck. The conductor, two brakemen and three passengers were killed; the engineer, a brakeman and nine passengers badly hurt.

Early on the morning of the 2d a freight train on the Louisville, New Albany & Chicago road broke in two near Bedford, Ind., and the rear section ran back down a grade and into the head of a following freight. The engine and 9 cars were piled up in a bad wreck, and the conductor was killed.

On the afternoon of the 2d there was a butting collision between two freight trains on the Louisville & Nashville road near Mumfordsville, Ky., caused by a misunderstanding of orders. Both engines and 10 cars were damaged and the road blocked six hours.

On the morning of the 6th there was a butting collision between two freight trains on the Grand Trunk road near Port Hope, Ont., by which both engines and 12 cars were damaged and a brakeman badly hurt.

On the evening of the 6th there was a butting collision between two freight trains on the Cincinnati, Washington & Baltimore road near Athens, O. Both engines and seven cars were damaged.

On the evening of the 6th there was a butting collision between two freight trains on the Grand Rapids & Indiana road near South Boardman, Mich., caused by the failure of the conductor of one of the trains to obey orders. Both engines and four cars were badly wrecked.

On the morning of the 7th there was a butting collision between a freight and a passenger train on the New York & New England road near Ironstone, Mass. Both engines and several cars were damaged. The Railroad Commissioners found that the conductor of the freight had carelessly made a mistake in reading his time card, and that the engineer did not make proper efforts to stop his train.

On the afternoon of the 9th there was a butting collision between a passenger and a repair train on the New York & New England road near Plainville, Conn. Both engines, the baggage car and four ballast cars were badly broken; the engineer and a boy who was riding in the baggage car were killed and the express messenger badly hurt. The operator at Plainville had received orders to hold the passenger train until the repair train came in, but failed to do so.

On the morning of the 10th, on the Pittsburgh & Western road, in Allegheny, Pa., there was a butting collision between a freight train and three freight cars which some yardmen were running down grade to a siding. The cars were badly broken up.

Very early on the morning of the 11th there was a butting collision between a freight and a special passenger train on the New York, Lake Erie & Western road, near Jamestown, N. Y. Both engines and a number of freight cars were wrecked. The conductor and a brakeman on the freight were killed and a brakeman hurt. It is said that the freight engineer did not obey his orders.

On the afternoon of the 13th there was a butting collision between the pay train and a freight train on the Erie & Pittsburgh road, near New Castle, Pa., caused by a misunderstanding of orders. Both trains were wrecked, both engineers, the paymaster and another passenger on the pay train were hurt.

On the evening of the 16th there was a butting collision between a passenger and a freight train on the Chicago, St. Paul, Minneapolis & Omaha road near Menominee Junction, Wis. Both engines and several cars were badly damaged.

On the morning of the 21st a construction train on the New York & New England road ran into a freight train which was coming out of a siding at Clayton, Conn. Both engines were damaged.

On the morning of the 21st there was a butting collision between a passenger and a freight train on the Louisville & Nashville road near Birmingham, Ala. Both engines and several cars were wrecked, a fireman killed and an engineer hurt. The accident was caused by an operator's mistake.

On the morning of the 23d there was a butting collision between a freight train and a wild engine on the Genesee Valley road near Canawaugus, N. Y., by which both engines and several cars were damaged. The accident was caused by a misunderstanding of orders.

On the afternoon of the 23d there was a butting collision between a wild engine and an ore train which was running down grade without an engine on the Bingham Cañon & Salt Lake road, near Bingham, Utah. The engine and cars were piled up in a bad wreck and three trainmen were badly hurt.

On the afternoon of the 25th a passenger and a ballast train on the Northern Central road met near Mt. Carmel, Pa. Both engines and several cars were damaged and five laborers hurt.

On the afternoon of the 25th there was a butting collision between a freight and a passenger train on the Rensselaer & Saratoga road near Schenectady, N. Y., caused by an operator's mistake in reading orders. Both engines and six cars were wrecked, and the wreck caught fire and was partly destroyed. One passenger was killed and 6 others scalded.

On the 29th there was a butting collision between two freight trains on the Union Pacific road near Aurora, Wy., by which both engines were badly damaged.

CROSSING.

On the afternoon of the 30th a freight train on the Rome, Watertown & Ogdensburg road ran into a New York Central & Hudson River passenger train at the crossing in Charlotte, N. Y., upsetting three cars. The conductor and three passengers were hurt.

DERAILMENTS.

BROKEN BRIDGE.

On the morning of the 10th a log train on the Dodge logging road ran around a curve and upon a burning trestle over Horse Creek in Dodge County, Ga. The engine got across, but four cars broke through and fell to the ground, at once catching fire. Three laborers on the train were burned to death; the engineer and 11 others were badly hurt.

On the evening of the 10th a trestle bridge on the Natchez, Jackson & Columbus road near Natchez, Miss., gave way under a mixed train and seven cars fell into a creek and were wrecked. The conductor was killed and seven passengers hurt.

On the morning of the 17th a freight train on the Texas & Pacific road broke through a bridge near Texarkana, Tex., and several cars went down and were wrecked.

On the afternoon of the 22d a freight train broke through a bridge on the Louisville & Nashville road near New Haven, Ky., and the engine and nine cars went down into Rolling Fork in a complete wreck. Three trainmen were hurt.

SPREADING OF RAILS.

On the night of the 5th a passenger train on the Texas & Pacific road was thrown from the track near Weatherford, Tex., by the spreading of the rails.

On the morning of the 12th several cars of a freight train on the Missouri, Kansas & Texas road were thrown from the track near Denison, Tex., by the spreading of the rails.

On the morning of the 13th several cars of a freight train on the Chesapeake & Ohio road were thrown from the track near Staunton, Va., by the spreading of the rails.

On the evening of the 13th two cars of a mixed train on the Kentucky & South Atlantic road ran off the track near Mt. Sterling, Ky., and fell to the ground about 20 feet below. The cars were wrecked, a brakeman killed and two passengers hurt. The accident is said to have been caused by the rails spreading.

On the morning of the 19th a passenger train on the Florida Central & Western road was thrown from the track near Tallahassee, Fla., by the spreading of the rails. Two trainmen were hurt.

On the morning of the 25th the engine and six cars of a freight train on the Wabash, St. Louis & Pacific road were thrown from the track near Downing, Mo., by the spreading of the rails. Three trainmen were hurt.

BROKEN WHEEL.

On the morning of the 10th 16 cars of a coal train on the Columbia & Puget Sound road were thrown from the track near Newcastle, Wash., by a broken wheel, and piled up in a bad wreck.

On the morning of the 11th several cars of a passenger train on the Chicago & Northwestern road were thrown from the track near Elroy, Wis., by a broken wheel.

On the 13th a freight train on the Galveston, Harrisburg & San Antonio road was thrown from the track near Marfa, Tex., by the breaking of a wheel in the engine truck.

On the morning of the 15th the caboose of a freight train on the Burlington, Cedar Rapids & Northern road was thrown from the track near Burlington, Ia., by a broken wheel. A brakeman and five passengers, who were riding in the caboose, were hurt.

On the morning of the 16th a freight train on the New York Central & Hudson River road was thrown from the track near Spencerport, N. Y., by the breaking of a wheel under the tender.

On the afternoon of the 17th four cars of a coal train on the New York, Lake Erie & Western road were thrown from the track near Sterlington, N. Y., by a broken wheel.

Very early on the morning of the 26th three cars of a freight train on the New York, Lake Erie & Western road were thrown from the track in Port Jervis, N. Y., by a broken wheel.

BROKEN AXLE.

On the afternoon of the 2d a freight train on the New York Central & Hudson River road was thrown from the track near Rochester, N. Y., by the breaking of an axle under the tender.

On the afternoon of the 4th two cars of a freight train on the New York Central & Hudson River road were thrown from the track in Rochester, N. Y., by a broken axle.

Early on the morning of the 7th five cars of a freight train on the Grand Rapids & Indiana road were thrown from the track near Hobart, Mich, by a broken axle.

On the afternoon of the 7th several cars of a freight train on the Pittsburgh, Fort Wayne & Chicago road were thrown from the track near Wooster, O., by a broken axle.

On the morning of the 10th an axle broke under a car of a freight train on the Pennsylvania Railroad, near Union Furnace, Pa., and the car was thrown from the track, 23 others following it. The 24 cars were piled up in a bad wreck, blocking both tracks four hours. A brakeman was badly hurt.

BROKEN TRUCK.

On the morning of the 24th a passenger train on the New York, Lake Erie & Western road was thrown from the track near Attica, N. Y., by the breaking of a truck under the tender.

ACCIDENTAL OBSTRUCTION.

On the morning of the 9th a passenger train on the New York & New England road was thrown from the track near Medway, Mass., by a loose plank from a road crossing getting under the wheels. The engine and one car rolled over down a bank, injuring a brakeman and 4 passengers seriously and 7 passengers slightly.

On the morning of the 20th a passenger train on the Chesapeake & Ohio road struck a large stone which had fallen on the track near Fayette Court-House, W. Va. The engine and 8 cars were thrown from the track, and the engine was badly wrecked, killing the engineer and injuring the fireman.

On the night of the 25th 10 cars of a freight train on the Cincinnati, Indianapolis, St. Louis & Chicago road were thrown from the track near Gallaudet, Ind., by a brake-beam which dropped down on the rails. Several of the cars were badly broken.

CATTLE.

On the morning of the 9th a repair train on the Chesapeake, Ohio & Southwestern road ran over a cow near Caneyville, Ky., and several cars were thrown from the track. The conductor and a laborer were killed and another aborer badly hurt.

On the afternoon of the 17th a freight train on the Philadelphia & Reading road ran over a cow near Shamokin, Pa., and 12 cars were thrown from the track and wrecked. A man, who was stealing a ride, was killed and a brakeman was hurt.

On the evening of the 27th a passenger train on the Cumberland Valley road ran over a cow near Harrisburg, Pa., and the engine and five cars were thrown from the track.

WASH-OUTS AND LAND-SLIDES.

Very early on the morning of the 7th a freight train on the Milwaukee, Lake Shore & Western road ran into a wash-out near Cato, Wis., and the engine and six cars were piled up in the gap. The engineer and fireman were hurt.

On the morning of the 7th a freight train on the Credit Valley road ran into a wash-out near St. Thomas, Ont., and the engine was wrecked, killing the engineer and fireman.

Near midnight on the 11th a passenger train on the Grand Trunk road ran into a wash-out near Ingersoll, Ont., and was badly damaged.

On the night of the 24th the engine and two cars of a passenger train on the Minnesota Central road ran into a wash-out near Red Wing, Minn., and the engineer was hurt.

On the afternoon of the 26th a passenger train on the Canadian Pacific road ran into a land-slide near Winnipeg, Man. The engine was upset, killing the engineer.

On the afternoon of the 29th several cars of a construction train on the New York, West Shore & Buffalo road ran into a wash-out near Geddes, N. Y., and were wrecked.

WIND.

On the afternoon of the 13th a passenger train on the Chicago, Burlington & Kansas City road was blown from the track by a tornado near Browning, Mo. Two cars were wrecked, two trainmen and seven passengers hurt.

On the afternoon of the 13th a train of 25 empty freight cars on the East St. Louis & Carondelet road was blown from the track in East St. Louis, Ill., by a tornado.

On the afternoon of the 13th several cars of a freight train on the Chicago, Burlington & Quincy road were blown from the track in Albany, Mo., by a cyclone.

On the afternoon of the 21st some cars of a passenger train on the Chicago & Northwestern road were blown from the track near Green Bay, Wis., by a violent storm.

On the afternoon of the 21st a passenger train on the Chicago and Northwestern road was blown from the track by a cyclone near Owatonna, Minn., the cars being wrecked, two trainmen and 25 passengers hurt.

MISPLACED SWITCH.

On the morning of the 12th a passenger train on the Philadelphia & Reading road was thrown from the track near Quakertown, Pa., by a misplaced switch, and two trainmen were hurt.

On the evening of the 18th the engine and six cars of a coal train on the Indianapolis & St. Louis road were thrown from the track at Nameoki, Ill., by a misplaced switch. The fireman was hurt.

On the afternoon of the 19th a passenger train on the New York, Lake Erie & Western road was thrown from the track at West Newburg, N. Y., by a misplaced switch. The engine upset and was badly damaged.

On the evening of the 30th a passenger train on the New York, Lake Erie and Western road was thrown from the track in the yard at Port Jervis, N. Y., by a misplaced switch.

MISCELLANEOUS.

On the morning of the 9th a freight train on the New York & New England road was thrown from the track near Clayton, Conn., where some workmen had taken out a rail for repairs and had not put out a proper signal. The engine and 11 cars went into the ditch.

On the evening of the 15th, as a freight train on the Jeffersonville, Madison & Indianapolis road was running some cars into a siding at Crothersville, Ind., by a flying switch, the switch was not changed in time and seven cars were thrown from the track.

On the morning of the 21st, as a coal train on the Central Railroad, of New Jersey, was being run on a high coal dock at Elizabethport, N. J., the engine was not stopped soon enough, and 24 cars were pushed off the end of the dock, falling 30 ft. into the water.

MALICIOUS.

On the night of the 2d the engine and two cars of a passenger train on the Chicago, Burlington & Quincy road were thrown from the track in Peoria, Ill., by a misplaced switch. It is believed that the switch had been purposely set wrong, as it had been properly placed but 10 minutes before.

On the morning of the 18th an East Tennessee, Virginia & Georgia express train was thrown from the main track by a misplaced switch at the zinc works, one mile east of Knoxville, Tenn. The train was running at full speed and struck four coal cars on the side track, demolishing them. The engine jumped the track and ran into the main building of the works just erected by the East Tennessee Valley Zinc Co., tearing away the whole side of the building. The locomotive struck the stationary engine of the Zinc Co., demolishing it completely. The locomotive and tender were overturned. The mail car was torn to pieces, and the express car was damaged. The damage to the railroad company is about $10,000, and to the zinc company about $6,000. The railroad company offered a large reward for the apprehension of the person who broke the lock and changed the switch, and he has been arrested.

UNEXPLAINED.

On the evening of the 1st the engine of a freight train on the Denver & Rio Grande road ran off the track near Grand Junction, Col., and upset, killing the engineer and injuring the fireman.

On the morning of the 3d the engine of a coal train on the Philadelphia & Reading road jumped the track in Pottsville, Pa., and several cars were piled up on the tender.

On the afternoon of the 3d four cars of a freight train on the New York Central & Hudson River road ran off the track near Whitesboro, N. Y., blocking one track three hours.

On the night of the 3d several cars of a freight train on the Texas & Pacific road ran off the track near Millsap, Tex., and 10 cars were damaged.

On the morning of the 4th the engine and several cars of a coal train on the Pennsylvania Railroad were thrown from the track near Bedford, Pa., and the engineer was killed.

On the afternoon of the 5th a passenger train on the Richmond & Danville road ran off the track near Central, S. C., and the engine and two cars went down a bank and were wrecked. The engineer and fireman were hurt.

On the night of the 5th a freight train on the Pennsylvania Railroad ran off the track near Bird-in-Hand, Pa., blocking both tracks six hours.

On the morning of the 6th the engine and six cars of a coal train on the Syracuse, Geneva & Corning road ran off the track near Himrods, N. Y., blocking the road all day.

On the morning of the 12th a freight train on the Missouri, Kansas & Texas road ran off the track near Denison, Tex. The engine upset, killing the fireman.

On the morning of the 14th four cars of a freight train on the East Tennessee, Virginia & Georgia road ran off the track in Macon, Ga., wrecking completely several hundred fine watermelons.

On the 14th eight cars of a freight train on the Houston & Texas Central road ran off the track near Morgan, Tex., and were damaged.

On the morning of the 17th two cars of a passenger train on the Savannah, Florida & Western road ran off the track near Live Oak, Fla., and upset down a bank.

On the night of the 17th several cars of a freight train on the Pennsylvania Railroad ran off the track at East Liberty, Pa., tearing up the platform.

On the morning of the 18th several cars of a freight train on the Indiana, Bloomington & Western road ran off the track near Springfield, O., blocking the road some time.

On the evening of the 20th several cars of a freight train on the New York Central & Hudson River road ran off the track near Grimesville, N. Y., doing a little damage.

On the afternoon of the 24th a freight train on the Wabash, St. Louis & Pacific road ran off the track near Lawson, Mo., and five cars and the caboose rolled over down a bank. A passenger in the caboose was killed and 9 others hurt.

On the morning of the 25th five cars of a coal train on the New York, Lake Erie & Western road were thrown from the track near Susquehanna, Pa., and wrecked.

On the afternoon of the 27th 16 cars of a freight train on the Pennsylvania Railroad ran off the track near Leaman Place, Pa., and were piled up in a bad wreck.

On the morning of the 30th a freight engine on the New York, Lake Erie & Western road ran off the track near the round-house in Susquehanna, Pa., and fell into the turn-table pit.

OTHER ACCIDENTS.

BOILER EXPLOSION.

On the morning of the 3d a freight engine on the Chicago, Rock Island & Pacific road exploded its boiler while standing on the track in Peoria, Ill. A strip several feet long was torn out of the boiler at its forward end and on top of the barrels and the dome was torn off. The force of the explosion was upward.

BROKEN CONNECTING ROD.

On the morning of the 13th the engine of a passenger train on the New York, Lake Erie & Western road broke a parallel rod when near Binghamton, N. Y., and was badly damaged.

On the morning of the 24th the engine of a freight train on the Central Railroad, of Georgia, broke a parallel rod near Augusta, Ga., and the loose ends tore out one side of the engine pretty badly. The wood-passer jumped and was killed.

MISCELLANEOUS.

On the morning of the 19th a wild engine on the New York, Ontario & Western road broke a crosshead when near Middletown, N. Y., and one side of the engine was badly torn up. The fireman jumped and was hurt.

On the evening of the 27th a passenger train on the Buffalo, New York & Philadelphia road, near Machias, N. Y., struck the limb of a large tree which had blown down close to the track. The jagged edges of the limb reached just high enough to strike the lower half of the windows, and before the train could be stopped the limb had banged out nearly every pane of glass in one side of two coaches, and also done some damage to the sash. There was much excitement in the car as the glass was cracking and hissing through the air. Two Italians received painful wounds in the arm, and one was taken home in a carriage, with his arm probably broken. Other people were cut in the face and hands, but none seriously injured.

SUMMARY.

This is a total of 119 accidents, in which 57 persons were killed and 204 hurt; an increase of 27 accidents, of 39 killed and of 148 injured, as compared with July, 1882. This comparison is with an exceptionally favorable month.

The seven months of the current year to the end of July show a total of 930 accidents, 278 killed and 1,012 injured; a monthly average of 133 accidents, 40 killed and 145 injured. July was below the average in accidents, but above it in killed and injured, two or three very fatal accidents largely swelling the number of casualties.

Contributions.

Minor Stations and Yards of Double-Track Lines.

I.

NEW HAVEN, 1883.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Having lately observed many instances of poorly-planned stations and yards, more especially in the case of minor local stations on double-track roads, I send you herewith a rough sketch of an arrangement of tracks and buildings applicable to such cases, not claiming originality for all the ideas embodied therein, although I do not remember to have

seen this particular combination of them before. No attempt is made to draw accurately to scale, the sketch being merely for illustration in a general way, and what I have to say is from the standpoint of the operating officer, rather than of the architect and engineer. It should not be forgotten that, although special circumstances will frequently cause special modifications of design, general ideas once grasped can always be embodied in the general plan, and hence I do not present diagrams as standards in any sense, but simply as illustrations of certain elementary principles which, I think, are entitled to more recognition than is usually accorded them.

Recurring now to the figure, the main line switches, it will be observed, have no facing points; no misplacement of them can throw an approaching train on to a siding, and if (as should be the case) they are of an approved safety pattern, no derailment is possible.

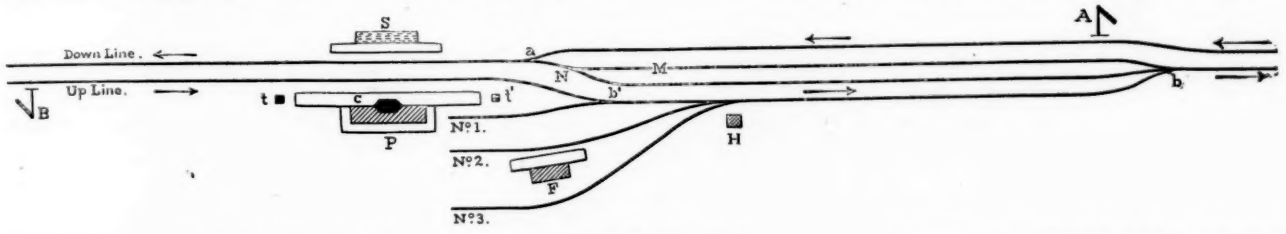
Instead of the two customary passing sidings flanking the main lines, a single middle siding, *M*, is placed between them, commencing at the gents' end of the station platform thus bringing one end of a waiting train as near the telegraph operator as is possible without its intervening between the platform and the down line, thus insuring dispatch in the delivery of train orders.

A single middle siding thus placed has several advantages. It requires less additional right of way; for trains of either line can use it without crossing the other, thus rendering two sidings unnecessary and reducing the cost of construction of passing sidings 50 per cent.—an important item on trunk lines where long trains necessitate long sidings.

Middle sidings of course introduce curves into the main line, but if properly constructed they are too slight to be of much consequence in practice, as can be readily verified by observation wherever such sidings are in use.

Where two trains require a siding at once, spur track No. 1 can be used by one of them.

Interlocking signals are now made so well and cheaply that there is is no excuse for not employing either them or



some equally efficient substitute. Double-track lines should have distant signals interlocking with all main line switches. Semaphore arms are the best form, and only two of them are required to insure absolute safety in all the station operations. These should be located at proper distances, as shown at *A* and *B*, being at equal distances from the respective points they guard, though unequally distant from the station. *A* should interlock with switch at *a* and *B* with switches at *b* and *b'*, and both should be under control of the operator at ticket office *c*, enabling him to block the line while trains are at the station. A prominent signal company now furnishes signals which are also well adapted to this case. At *A* and *B* their disc signals are held at safety against the action of gravity by the current of a closed electric circuit. On any failure of the current the signals go to danger by their own weight. The opening of a switch, a train upon a siding not fully clear of main line or a train standing at a station automatically breaks the circuit and sets the proper signal at danger, and the circuit can be carried into the telegraph office, and the operator also given power to instantly set any and all signals at danger. Theoretically, disc signals are inferior to semaphores, which can be more certainly distinguished under trying circumstances and at long distances, but it will be seen that the above system has special advantages of its own.

Where conservatism or false economy, as is too frequently the case, prevents the use of new and improved appliances it should be observed that the arrangement of tracks and switches, shown in the diagram, is especially adapted to the protection, by their tail brakemen of trains while going in on sidings, for on both lines trains must run by the switch and then back in, leaving trainmen no excuse for not promptly protecting their rear, and in the absence of signals at points *A* and *B* their places should be occupied by posts designating the limits of the station yard, between which trains should slacken speed, and to which limits tail brakemen should proceed when sent back to protect their trains.

In general, signals should be placed on the engineer's side of the track, but the signals by which trains are held for telegraphic orders are an exception to this rule. They should always be visible from the station platform, and hence come on the station side of the track. Many roads use but one signal placed over the bay window of the ticket office, but a better plan is that adopted by a prominent New England road which locates two semaphores at the extremities of the station platform, *t* holding down, and *t'* up line trains. With this system it becomes possible to rigidly enforce the rule that no engineer shall pass such signal when at danger which cannot be done when one central signal is used, and, moreover, in that case the one signal when at danger holds all trains, irrespective of their direction, causing needless delay, where the clearance card system is in use.

Local freight trains of double-track roads are often much delayed in their work at stations where they are compelled to use the main line in switching operations, as time-table rules generally compel them to clear the line 10 minutes before the time of trains of superior grade, which run at frequent intervals.

To avoid this delay the switching track No. 1 in the figure starts from the extreme end of the middle siding, and is therefore of ample length to permit all ordinary switching operations without the use of the up line. This track can also be used as a siding by either freight or passenger trains, and when used by the latter, its proximity to the station platform affords passengers ready access to the waiting train.

Under ordinary circumstances down trains desiring to reach spur No. 1 would use the middle siding *M* in crossing over, but should the siding be occupied by another train, the special cross over *N* can be used, but under no other circumstances should this be permitted, as trains in passing by it from up to down line are compelled to move from *b'* to *b* against the traffic, and hence where this cross over is in use, its switches should be secured by special locks, of which the key should be kept by the station agents only.

From spur No. 1 (which should usually be kept clear of cars) diverge two other spur tracks, Nos. 2 and 3, to be used for leaving freight cars, the distance between Nos. 1 and 2 and on each side of No. 3 being sufficient to accommodate teams in loading and unloading, and No. 2 track adjoins the freight platform. Tool and hand-car house will be well out of the way if located at *T*, and will require the section men to open but one switch. To locate the same on main line is not advisable, as it causes a needless obstruction of the line whenever the car is transferred from track to house, or *vice versa*, which happens at least twice a day on each section, thus giving carelessness two more chances for causing an accident. A hand-car house located on main line is a more active element of danger than is a cross-over track unprotected by proper distant signals.

In your next issue I shall finish what I have to say with a few words on the construction and interior arrangements of the passenger station itself.

EDWIN A. HILL.

Educated Road-Masters.

PORT JERVIS, N. Y., Aug. 18, 1883.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Referring to the subject of the comparative merit of educated and practical road-masters, permit me to add a word. The strongest combination for the accomplishment of work is theory and practice. Let *them* attack work hand in hand and neither practice nor theory alone can approach the effectiveness of such a union. The maintenance of way department, to be wisely and economically managed, must have education in its ranks somewhere; no matter what the title, be it road-master, track-master or division engineer. The question is: Can the maintenance of way matters be better managed by educated or practical men; not mismanaged, as in the case cited by "Southern Engineer," where bridges were allowed to corrode for want of paint and banks to remain so scanty as to undermine the ties. There is no excuse for such a condition. Neither ignorance nor poverty can palliate culpable neglect. Roads differ widely in their management of maintenance of way matters. In that system where the road-master is made responsible for the condition of bridges, buildings, masonry, track, and all matters pertaining to that department, no one will question that education is not only necessary, but the *sine qua non* of such a position. Under such a system, he is called upon to do duties that only an educated man can faithfully perform; but where he has the supervision of track, the clearing of wrecks and work of that class alone, by all means let him be a graduate of the pick and shovel. Let him be a thoroughly practical trackman, nursed and raised among ties, plates and rails, where track is second nature to him, and where his valuable store of examples and precedents, tempered with sound judgment, go further toward the clearing up of sudden trouble than all the schemes and theories of science backed by a flood of education.

ROAD-BED.

The Train Dispatcher's Board.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I regret that your correspondent "H. T." in the GAZETTE of Aug. 10 does not appreciate my effort to lighten the labor of the train dispatcher, and, although feeling somewhat overawed by the locality from which he writes, I will make bold to set him right on some points.

When the operator is furnished with a board like mine, the dispatcher does not come up and look over the operator's shoulder at the train-sheet to find out where the trains are; he simply looks across the room at the blackboard, and there he sees every train on the whole division, each and every one more plainly indicated than by the train-sheet.

Mr. H. T. is appalled by his little example in arithmetic, and thinks that I am placing too much work on the dispatcher. A simple analysis of the two processes will show that it requires a less number of muscular movements to slide one of my blocks along its track than it does to write down the hour and minute of the departure of a train, and although $80 \times 28 = 2{,}240$, so also $24 \times 60 = 1{,}440$. There are 1,440 minutes in a day, which will give an average of about three movements in every two minutes, and the actual increase of work is insignificant.

I will admit that a dispatcher who has "to regulate the making up of trains and distribution of cars, see that the electric signals are all right and a thousand other things" besides his legitimate duties, has altogether too much to do. I should suppose that the Master of Transportation and the Superintendent of Telegraph, to say nothing of the Division Superintendent, might relieve him of some of the work, but I am not familiar with the operations of "first-class heavily burdened" roads.

"H. T." unintentionally points out one of the beauties of my blackboard: "See that too many trains are not run to a siding of limited capacity," etc. The capacity of the siding is easily represented on my board by the length of the extra strip, and on Mr. Fowler's by the number of holes at the station, and when the siding is full of trains, that fact is shown by the crowded group of dummies.

The greater the traffic the quicker will the diagram show its utility, but such an ill-tempered dispatcher as "H. T." describes would "have no use for it," nor was it intended for men of such disposition. I cannot help thinking that "H. T." has not tried the board yet. Let him have one made, either like Mr. Fowler's or mine, and give it a *fair trial*, and then tell me who kicks it out.

T. APPLETON.

Car Woods.

TO THE EDITOR OF THE RAILROAD GAZETTE:

That part of the Census Report (1880) relating to Forestry was placed in charge of Professor Sargent of Harvard College, and one of his assistants in the various and extended labor of preparing materials, is my friend Prof. S. P. Sharples, of Boston, to whom I am indebted for some interesting facts about white wood. I became interested in this wood about two years ago, but was unable to discover with certainty what single variety of tree it represented. At last, however, I met Prof. Sharples, and found the explanation of the various replies which my questions about the wood had elicited. White wood is only a local name, as are also tulip wood, poplar, sycamore and perhaps cucumber wood, although this last may stand only for the magnolia wood, some varieties of which very closely resemble in appearance white wood. There are supposed to be two varieties of the tulip-poplar (*liriodendron tulipifera*) a soft and a hard and coarser wood; but these are the same tree changed by peculiarities of growth consequent perhaps upon location. The specific gravity of the harder wood is 0.450; of the softer, 0.365; in some cases I believe both kinds have been found on various arms of the same tree. In general, however, it is probable that the damper and richer low lands produce the soft and more useful variety. Softness and hardness arise apparently solely from the method of the packing of the cellulose into fibres and bundles of fibres; the ash (mineral matter) of woods of unequal hardness may be quite the same in quantity; the specific gravities of the various woods, however, correspond very closely with their soft or hard quality. The soft wood is preferred because of its "brash" or easy working quality; but I have seen the panels of a car made from the harder wood in very nearly perfect condition after twenty years' service. White wood is valuable also because it remains where put, notwithstanding the fact that its surface is perhaps as easily affected by water as almost any wood, so that, to use a not too strong phrase, it will roll itself down hill between fall and spring by contractions and expansions.

Professor Sharples has given a good deal of attention to the forests of Virginia, and says that along the streams the tulip-poplar is one of the finest trees of the forest, and more sought for than perhaps any other with the exception of black walnut.

The forest portion of Virginia forms what was known in the early part of the century as the "wild lands" of Virginia. A large amount of timber has been destroyed here by fires, and the "deadenings" made by squatters for their corn fields and tobacco patches, but much fine forest still remains. There are tracts where the tulip-poplar will square two feet for 60 ft. of length,* and where the beech, the oak, the hickory and the sugar maple have never been touched. This timber is generally found in coves at the heads of small streams, and in comparatively inaccessible localities; but the country is being slowly opened up by railroads. One of the finest tracts of the much-used cherry tree is found along the eastern edge of the outcroppings of the coal measures in the northern part of this region. Those who have been accustomed to see miserable, caterpillar-eaten specimens of this tree, would be surprised by the splendid trees found growing in these forests—trees three and four feet over the

* There are tulip trees still standing, and not a few of them, on the northern end of Manhattan Island, near High Bridge, nearly or quite as large as this. Large supplies of white-wood lumber are obtained from the Wabash and other parts of the Ohio Valley.—EDITOR.

stump and 60 ft. upwards before reaching a limb are here not uncommon. The sugar maple rivals here the cherry in size and surpasses it in abundance, much of the cherry, spruce and maple lands being mountain meadows, where the soil is so damp that forest fires make no headway. Cherry throughout this district is the favorite wood for fencing.

Cherry was, no doubt, used long ago as a decorative wood; but there are definite reasons for believing that its recent introduction for this purpose was due to Professors Sargent and Sharples, of whom the Boston & Albany Railroad asked advice when about building their new depot in Boston. It is certainly one of the handsomest of our common woods, although it has certain disadvantages not belonging to the harder woods. One of the larger dealers in fine woods here told me the other day that in his experience we have already rather too many than too few woods in the market; and with one exception we are by no means sure that this is not the case. This fact, however, makes the work of the forestry commission, if we may so designate it, more, rather than less valuable. It has gathered over 400 varieties of wood, represented in their collection by some 2,500 specimens. These have been subjected to test as to strength, specific gravity, etc., and a large number of important facts about them collected and placed in order. The result can hardly be other than a saving of commercial experiments with unnecessary woods, and the introduction perhaps of some which have specific values. Of decorative woods there can scarcely be too many, since every man, and every railroad company for that matter, prefers an individuality for his house or car. The common buttonwood, by a peculiar cut, is an illustration of the beauty which can be found in even ordinary woods. The oak has perhaps been the decorative wood of the world, and n a quarter cut, is still very popular. Mahogany will probably never be replaced for more than a short period of time by any other wood; while black walnut is disappearing rapidly from use with very fair prospects of a return to a better variety (curled), harder perhaps to work. The "sweet-gum," or, as Prof. Sharples prefers to call it, the "star-leaf" gum, is getting a large use in the Southwest and West.* California redwood has been experimented with in many places for cars, but I am not at all sure that it has given entire satisfaction; it is too liable to splinter. Ash is a cheerful wood, and valuable for a light effect such as is required in a car for summer use. The Pennsylvania Railroad cars and the Boston & Albany and New York & New Haven ceiled cars represent the two extremes of very good taste; the light and pleasing, the richer and more sombre, and to my own mind more car-like effects. Variety in decoration, however, is an absolute necessity, and in experience one of these styles is the foil of the other; and I am by no means sure that the lighter and more cheerful car will not outwear in pleasant acquaintance the more ideal and specific type. It has been necessary to confine statements within narrow bounds; as it will of course be unwise to anticipate facts hardly earned for the government.

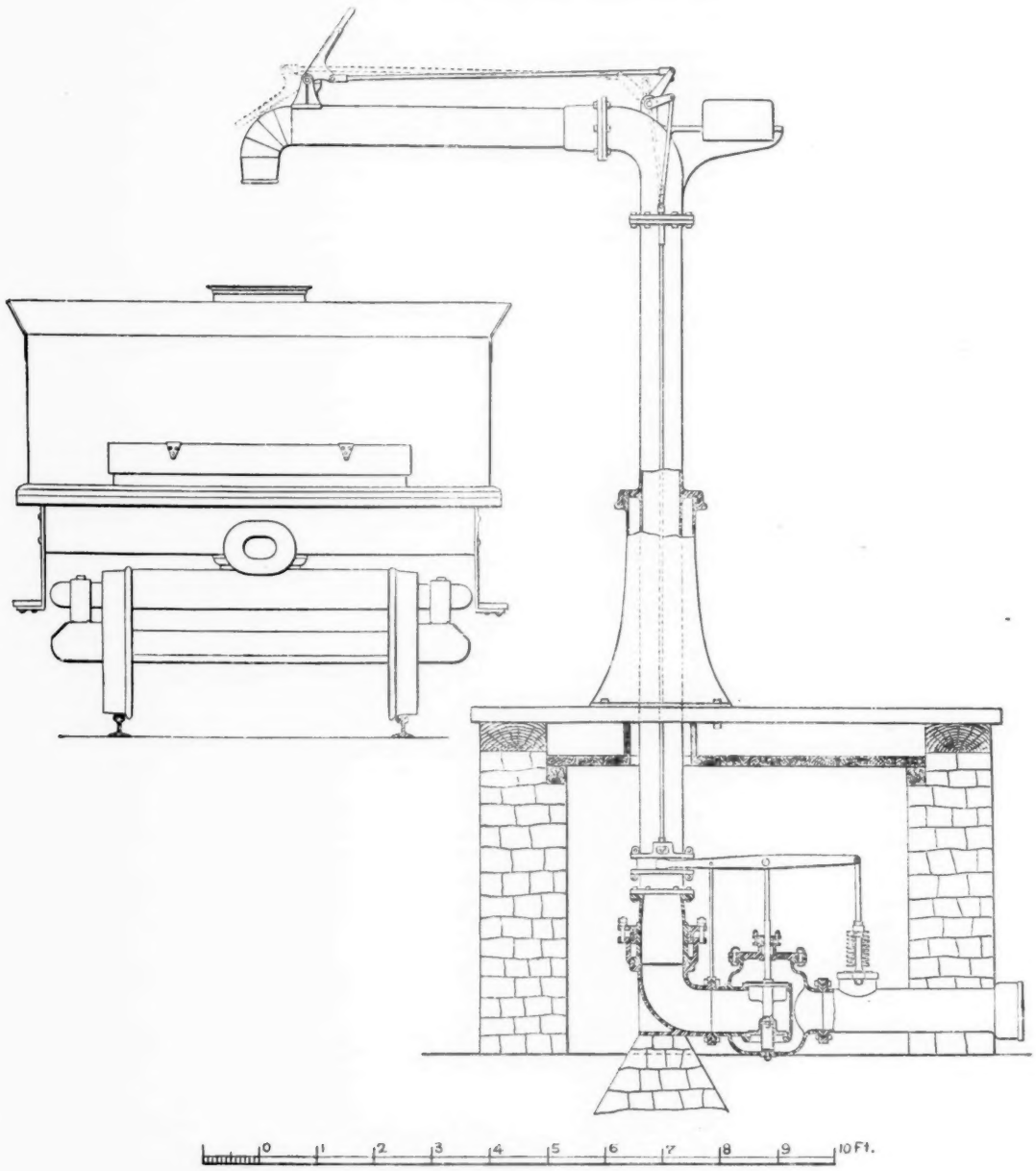
I have, however, so mixed statements made by personal observation or indirect experience that I am alone responsible for errors. I may, therefore, add a few facts about car timbers. The best of yellow pine sills will often outlast two cars; there are good reasons for not using it as window posts. But why do we not ask for these? Second growth ash, if I do not mistake, is a good wood; but I have seen a good deal of loosening of panels from the rotting of ash window posts. Finally, Why do we not make an attempt to produce fire-proof wood and cars? Few good chemists are rich enough to experiment on speculation (as they are often asked to do); but there are experienced men whom I for one would like to see at work at this difficult but important task. The Chinese government, as I know from a friend residing under it, is ready to pay any reward for such a method; but the way to get the method is to choose and support the man. Few young men are fitted for such a task, but in the hands of a thoroughly educated and experienced chemist of inventive mind some good results would certainly appear. Certainly the matter is important enough for a trial of skill. C. L. C.

* Within the past two years it has been used quite extensively in New York city for inside finishing of houses. When "quarter cut" scarcely any wood exceeds it in beauty, and though soft and easily worked, it takes a beautiful polish. But is perhaps the worst of all woods to warp, though it is claimed that this objection is removed by certain processes of seasoning. Scarcely anything could be handsomer for inside finish of cars, if otherwise suitable. It can hardly be said to have any grain, and to split it is almost impossible, which makes it useless for farmers' use for rails, firewood, etc., and it therefore has been left where other trees have been removed. This peculiarity was taken advantage of during the siege of Vicksburg by the late Capt. S. R. Tresilian, of General Logan's staff, who had 6-lb. and 12-lb. mortars made of sweet-gum logs, which served the purpose of Coehorn mortars very effectively, and did not split in firing.—EDITOR.

Collin's Water-Crane.

The engravings represent a water-crane designed and patented by Mr. J. B. Collin, the well-known Mechanical Engineer of the Pennsylvania Railroad.

The most important novelty in the construction is he valve. This is a balanced puppet valve, which seats itself with or under the pressure of the water, but is prevented from striking the seat with destructive violence by means of a dash-pot constructed in the lower part of the valve; the plunger which enters the pot or cavity in the valve is loosely fitted, and as the valve is raised this cavity fills with water, which has to be forced out again before the valve can reseat itself, and thus retards its downward motion. As a further protection against the destructive shock produced by the sudden stoppage of the flow of water, the pipe is provided with a large safety valve, which will automatically open and allow the water to run to waste until the momentum of the moving water in the main is spent.

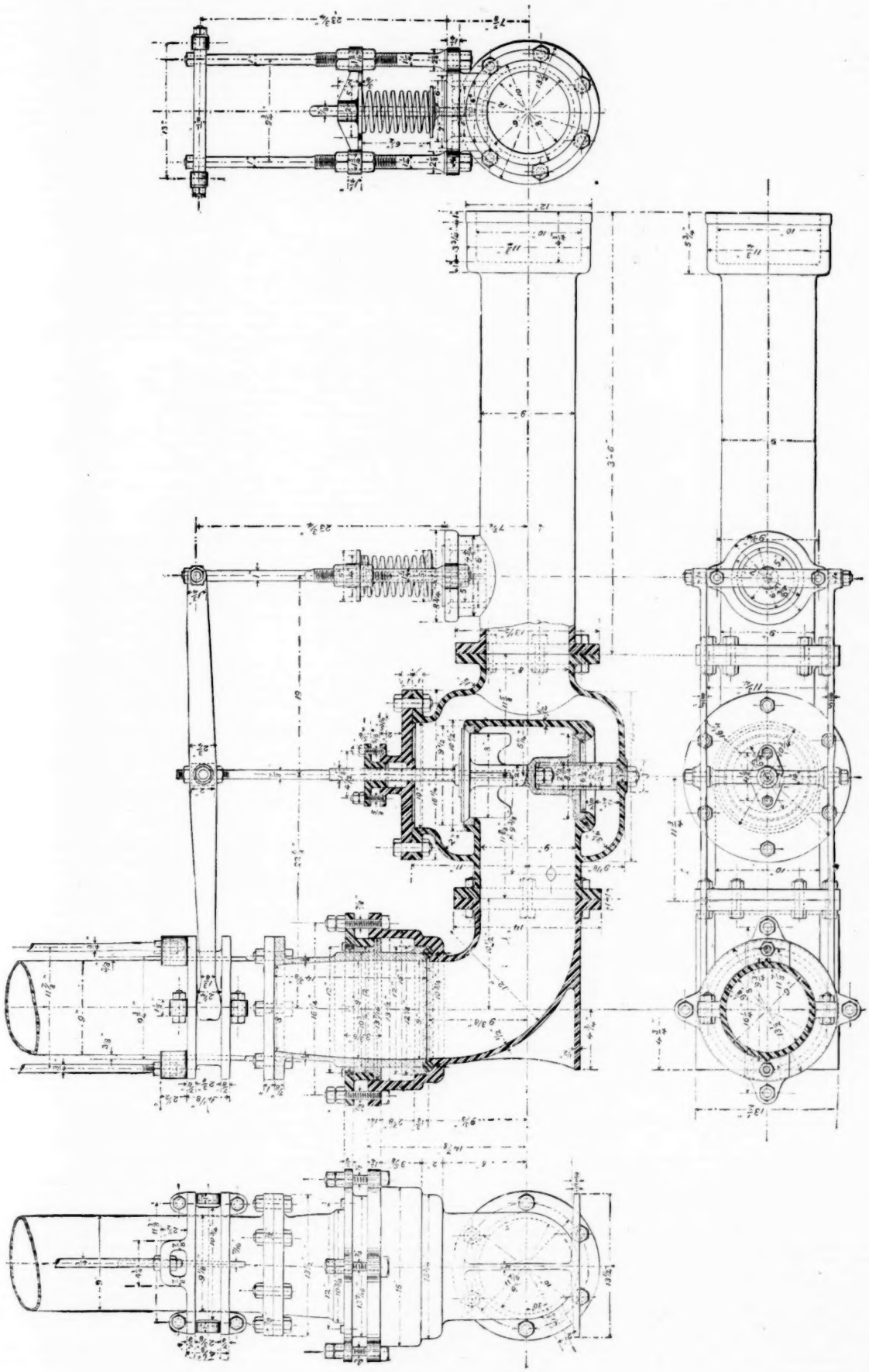


WATER CRANE USED ON THE PENNSYLVANIA RAILROAD.

Designed by J. B. COLLIN, Mechanical Engineer.

It is hardly necessary to refer to other details of construction, as they are clearly shown on the engravings. It will be noticed that the fireman need not leave the tender in order to take water. It will also be seen at a glance that all parts are easily accessible for repairs.

About 40 of these cranes are now in use, and they are giving entire satisfaction. Parties wishing to make further inquiries about them can address Mr. J. B. Collin, Altoona, Pennsylvania.



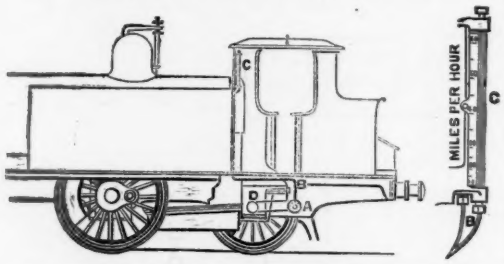
DETAILS OF WATER-CRANE USED ON THE PENNSYLVANIA RAILROAD.

Locomotive Speed Indicators.

Mr. Clement E. Stretton, in a recent number of the *English Mechanic*, describes Stroudley's speed indicator as follows:

Railway companies issue instructions that trains are not to run over certain junctions and other parts of the line at a greater speed than that laid down in the "speed orders." Drivers are frequently blamed, and sometimes fined, for exceeding the limit; in many cases there is no willful intention of doing so, but simply that the driver has not correctly estimated the speed. Colonel Yolland reported upon this subject, "the railway companies do not place on their engines indicators to show the rate of speed at which a train is running; it is all guesswork."

To run a train over a portion of line at a much higher speed than that laid down in the speed orders is certainly a dangerous practice, and under these circumstances it is not at all right that the safety of a train should be left to guesswork. It is therefore very satisfactory to find that the London, Brighton & South Coast Railway is fitting engines with the necessary speed indicator. The apparatus is the invention of Mr. Stroudley, and is shown on the diagram fitted to a Brighton engine. It consists of a short cylinder *A*, into which is fitted a paddlewheel, the axle passing through a stuffing-box on one end of the cylinder and provided with a pulley-wheel; on the upper side of the cylin-



der, or attached thereto by pipes *B*, are fixed a reservoir and glass tube *C*. Upon one of the engine axles or wheels a pulley, *D*, is fixed, which by means of a strap communicates motion to the pulley *A*, and the paddlewheel above described. The pulleys are so designed that 414 revolutions of the paddlewheel per minute will force the water up the glass tube to a height which represents a speed of 60 miles per hour as shown on the scale. From these details it will be seen that the number of revolutions per minute of the engine wheel is in exact proportion to the revolutions of the paddlewheel, and, consequently, the height of the water in the tube. The glass tube and scale of miles is placed on the weather board, or in the corner of the cab of the engine facing the driver and well within his sight, and within reach of the light from his gauge lamp, so that he can ascertain at night or in tunnels if his engine is running at the correct speed. In some instances the pulley is placed upon the driving wheels of engines; slipping is then instantly shown by the water running up to the top of the gauge.

Captain Galton, at a meeting of the Institution of Mechanical Engineers, referred to the use of the Stroudley indicator at the brake experiments on the Brighton Railway, and stated that "it measured the speed very accurately indeed." I have had several opportunities of witnessing the practical working of the Stroudley indicator, and find it gives very satisfactory results; it is, therefore, to be hoped that at no distant date a speed indicator will form part of the fittings for a locomotive engine.

A Difficult Piece of Tunnel Work.

One of the most successful feats of engineering ever attempted in this city was completed yesterday on the line of the new Pittsburgh, McKeesport & Youghiogheny Railroad. In locating a line on the Southside from Seventeenth street eastward, it became necessary to go through the property occupied by the American Iron Works of Jones & Laughlin, but in order not to interfere with the valuable plant it was decided to construct a tunnel, or more properly speaking, a covered way, through the works, at a depth some 20 ft. below the surface of the mill floor. The undertaking was thought to be a most hazardous one, but the engineers said it was entirely feasible, and that the work could be constructed without interfering in any way with the operations of the immense establishment. The surveys were immediately commenced, and no one but those who were actively engaged in the work can form any idea of the manual labor which this preliminary work involved. Nearly every foot of the ground was occupied with either buildings or huge piles of metal, and while the former were not disturbed, thousands of tons of metal, ore, sand, fire-bricks and other materials had to be moved before a definite location of the line of the proposed tunnel could be made. After the surveys had been completed it was decided that the covered way should be 1,650 ft. in length, 40 ft. wide, and have a clear passage way for two tracks, 18 ft. in height, thus involving a cut of at least 25 ft. throughout the entire distance.

After these preliminaries had been arranged, the engineers set about the construction of the difficult work which had been mapped out, and on July 16, 1882, the work of excavation was commenced at both the eastern and western portals. A force of several hundred laborers was employed, and the work on the western portion was pushed forward until nearly 600 ft. of the excavation was completed, when work was suspended and the entire force placed on the eastern end, from which side the remainder of the excavation was made, the material taken out being used in ballasting this roadway from the mill as far east as Turtle Creek, a distance of not quite nine miles, construction trains being placed at once on that section of the new line. The work was pushed through with all possible vigor, and the masonry, brick work and iron work followed close up to the excavators. The last car load of material was taken out of the cut June 15 last, thus completing that portion in about 11 months. The masonry work was commenced Aug. 12, 1882, and the last arch in the work was completed Saturday last, the work occupying a few days over one year, although construction trains had been running through the tunnel since June 24 last.

The tunnel, as stated, has been constructed of sufficient width for two tracks, and is admitted to be the most substantial piece of work of the kind to be found in the state. The ground through which it is constructed is composed almost exclusively of cinders and mill slag, and the treacherous character of the material required the utmost care in proceeding with the excavation. The cut was 40 ft. wide and fully 25 deep, and in order to secure a solid foundation a bed of the best concrete to the depth of 2 ft. at the centre line of the tunnel and 3 ft. at the sides was laid. This concrete formed the base for the solid walls of masonry on either side. The walls at the base course are 7½ ft. wide and at the top are 2½ ft. wide, the batter being ¾ in. to the foot.

From neat line to neat line the walls are 24 ft. 9 in. apart, and are constructed in first-class style and laid in the best cement. The concrete bottom is laid in the form of an inverted arch, and on this there are some 3 ft. of ballast upon which the ties rest. The roof of the tunnel is composed of iron girders 30 ft. in length and 20 in. in depth, which are placed 3, 3½ and 4 ft. apart, the distance being regulated by the estimated weight which they will be required to sustain. Between these girders, which are tied together with heavy iron rods, brick arches are constructed, running crosswise over the tunnel. These are laid with cement and in turn are covered over with concrete to the top of the girder. On top of this in some places are sheets of heavy boiler iron where weighty materials are to be unloaded, and at other places a thick coating of vulcanite or asphalt has or will be put on. Inside the tunnel, at a distance of every 200 ft., manholes have been constructed in the wall for the safety of employés who may be employed there when two trains are in the tunnel at the same time. There are 469 beams used in forming the roof, and some idea of the immense weight of iron consumed may be had from the statement that each girder weighs 2,400 pounds, making a total of 1,125,600 pounds. There were 78,000 cubic yards of material taken out of the excavation. The walls contain over 12,000 cubic yards of masonry, and in the roof arches there are 2,300 cubic yards of brick work. These figures do not include the masonry or brick work on sewers and culverts rendered necessary during the progress of the work to which reference is made below.

As stated at the outstart, the work was attended with engineering difficulties which many considered almost insurmountable. In the first place the material was nearly all cinder, and every foot of the excavation had to be shored up to guard against accidents to the army of men who were at work in the cut. At one place, however, a bed of slag was encountered, which defied pick or diamond-pointed drill, and even blasting was unavailing. The under bank had been on fire for many years, and the material had become a solid mass as hard as iron itself. This obstruction extended for a distance of over 100 ft. The only way in which it could be gotten rid of was to break it with heavy weights dropped upon it, and then excavating under the broken mass, bury it in the hole, as it was impossible to load it on the cars. Another source of serious difficulty was the sewers and pumping mains leading from the river to the works. In one instance it was found necessary to lower a sewer some 12 or 15 ft. below its original depth. To do this a tunnel running directly under the old sewer, from the river to the works, was made, a new sewer put in and then the old one was removed. This involved serious danger, but it was successfully accomplished. The lowering of the water mains was more easily done, but required great skill as well as caution. The most serious difficulty, however, was encountered on the surface, which was covered with a network of standard and narrow guage railway trains which with locomotives attached were constantly crossing and re-crossing overhead. These had to be secured as the work progressed, and there was not an hour of interruption. Then the inclines running from the river had to be supported so as to avoid delays and accidents. The numerous buildings located along the line of the work were also a source of constant difficulty, and the scrap piles and manufactured iron were always requiring attention.

During the whole progress of the work but one of the laborers employed in the excavation was killed, and that was by a neglect to follow directions in putting in supporting timbers. There were but one or two sheds removed, and they will be replaced at the expense of the company, it being cheaper to put up new structures than pay the cost of protecting the old ones. To professionals, another difficulty will be apparent when it is stated that there is a tangent at either end and a two-degree curve for a distance of 650 ft.

The work was constructed by Messrs. Jones, Drake & Co., who had the contract for the entire division of the road. Division Engineer H. E. Tripler had general supervision, but at the start Mr. O. H. Balderston was the Engineer in charge, with Mr. Theodore Low as Principal Assistant and W. A. Dickey and P. D. Barr as the other assistants. Mr. Balderston left the road for the purpose of supervising the construction of a large reservoir for Baltimore, when Mr. Low was appointed to the vacancy, and has had charge of the work with the assistants named from that time until the present.

The tunnel was estimated to cost between $300,000 and $400,000, but owing to the difficulties encountered, the actual cost will not be less than $500,000. It is a creditable piece of work, and the company has reason to be satisfied with the manner in which the construction has been conducted.—*Pittsburgh Dispatch, Aug.* 20.

The Railway Field in Mexico.

The comprehensive national railroad system of Mexico, as originally planned by her political leaders—and planned before they granted out the several concessions—may be roughly outlined as follows: Three transcontinental or east and west trunk lines, with two north and south trunk lines. This for the country northward of the city of Mexico, which is the bulk of the republic. For the rich triangle southward from the city of Mexico to Guatemala a little system of its own was laid out, giving it outlets to Atlantic and Pacific ports and down the Isthmus, to connect in time with the South American system.

The three transcontinental trunk lines above mentioned belt the republic successively from Tampico to Mazatlan; from Tuxpan to San Blas; from Vera Cruz to Manzanillo. The southern system provides for a fourth and more southerly transcontinental route, namely, from the city of Mexico west to Acapulco. The north and south trunk lines strike out from the city of Mexico to reach respectively El Paso, in the territory of New Mexico, and Laredo, in Texas, at which points they enter the United States and connect with our systems. To this well-considered system was added afterward another line, from Laredo to the city of Mexico, running nearer the coast and along a lower bench; the Huntington line, which runs from Eagle Pass to Durango—swinging thence by a curve across to the city of Mexico; the Topolobampo line from Eagle Pass to Topolobampo, and a number of branches, including an important subsidiary north-and-south line from Guaymas directly northward to the United States. This intelligently matured plan gives every state in Mexico, except the two small and remote states of Campeche and Tabasco, one or more lines, and, more important, gives each one direct railway communication with the capital. That such a system should be conceived at all by a nation cut off from the world and bankrupt in treasury, and its execution attempted, is a splendid tribute to the intellectual dash and energy of Mexican statesmanship.

This is the railway system of Mexico as planned. In the field it has not worked itself out so completely, although the results so far are very satisfactory, and all that Mexico could expect. When the several sections of this system were let out to foreign *concessionaires*, the north-and-south line from El Paso to the city of Mexico, with the transcontinental line from Tampico to Mazatlan, fell to the Central Company, organized in Boston; the north-and-south line, from Laredo to the city of Mexico, with the transcontinental line from Vera Cruz to Manzanillo, fell to the National Company, organized in New York, but with Philadelphia conspicuously represented in its management and capital. The transcontinental line to be built by this company runs out from the city of Mexico to Manzanillo; the section from the city of Mexico to Vera Cruz having been already built by an English company. [There is no relation between the National and the English company owning the line from Vera Cruz to Mexico, as might be supposed from what the *Ledger* says here; and in fact the National, or a corporation under the same general management, has a concession for a new line from Vera Cruz to Mexico.—EDITOR RAILROAD GAZETTE.] Both of these companies—the Central and the National—have made rapid and substantial progress in carrying out their contracts with the government. They both accepted their concessions in September, 1880, began work on the ground in October of the same year, and have now between them some 1,600 miles of road constructed. Together they have put into the work probably over $60,000,000 of gold. Very rarely has any government been as honorably and honestly dealt with as the government of Mexico by these two representative American companies.

The work of these two companies, however, represents nearly all that has been done in Mexico in the way of actual construction by American companies, as will be seen by the following table, which presents a detailed view of the completed railway mileage of Mexico up to date:

	Miles.
American Lines:	
City of Mexico, toward Aguascalientes and branches (Central)	345
El Paso, toward Durango (Central)	432
Tampico, westward (Central)	62
Guaymas to Nogales (allied with Central interests)	265
City of Mexico, toward Morelia (National)	227
Laredo, toward Saltillo (National)	220
Detached Lines (National)	178
Altata to Cullacan (Sinaloa & Durango)	38
Eagle Pass, toward Durango (Huntington Line)	73
	1,791
English Lines:	
Vera Cruz, to City of Mexico and branches	353
Mexican Lines:	
City of Mexico to Cuautla and branches (Morelos road)	183
Yucatan lines	68
Hidalgo road	56
Other short Mexican roads	300
Tehuantepec (forfeited from Americans)	28—635
Total railway mileage of Mexico	2,779

In the above table the italicized roads are of the narrow or 3 ft. gauge. Those in Roman type are of the ordinary 4 ft. 8½ in. gauge, excepting the short Mexican lines, many of which are 3 ft.

Both the great American roads have all the time one or more hundred miles of grading done in advance of their track. This is shifting all the time, as indeed are the mileage figures.

The Central and National are each laying track continuously from four or more points, and there is a fair possibility that both of them may have through routes to the city of Mexico by the end of 1884. We shall then enjoy continuous rail communication between Philadelphia and the city of Mexico by a choice of routes.

In May of this year the concessions of the Lower Bench Laredo Line, and of the Mexican Southern Co., were consolidated in a new concession, and General Grant was elected President of the united system. Under the terms of the new concession work of construction had to begin by July 14, and work was so begun.

This is the railway field of Mexico, but in considering it it must not be thought of as a distinct and separate system of itself, like the railways of England or of India, for instance. It is simply an extension of the enormous railway system of the United States, which at four different points already has projected itself across the border and into the interior of Mexico. The whole southwestern system of our country converges at San Antonio, and from thence crosses the Rio Grande at Laredo, whence in its onward march it has already passed Monterey. The Southern Pacific throws an arm across the border at Eagle Pass, and another at Nogales, while at El Paso the Texas Pacific [Atchison, Topeka & Santa Fe] already has 400 miles of Mexican connection.

So thoroughly are the Mexican railways accepted in the general mind as a mere extension and development of the United States system, that the popular railroad guides and registers began at once to publish the time-tables of these foreign roads in their alphabetical or other order among those of the United States. This is a small item, but it is significant and worthy of note because the action was unconscious and spontaneous. These tables appear now every month, without a word to indicate, unless it is suggested by the title, whether the railways are in Mexico or in the United States of America.—*Philadelphia Ledger.*

Long Rails.

It is said that the Philadelphia & Reading Railroad Co. proposes hereafter to use on the roads rails 60 ft. long instead of 30, and will begin their manufacture at once. The rails will also be increased in weight from 68 to 70 lbs. per yard. The decreased number of joints to care for will lessen expenses, it is thought, but there are difficulties in the way of handling and transporting the 60 ft. rails, which trackmen will understand.

A Singular Coupling Accident.

William Miller, one of the yardmen in the employ of the Chicago, Milwaukee & St. Paul Railway Co., had his forearm broken on Friday, while trying to couple two cabooses. Doctor Ballard was called to set the injured arm. The way in which this accident occurred was very singular and caused much comment among railway employés who gathered in a knot about the caboose to see how it was done. Most accidents in coupling cars are caused by the cars coming together and catching the unfortunate man between the draw-bars, but in this instance the man's arm was broken by cars moving away from each other. Miller is one of the most careful and skillful men in the yard, a man who took no foolhardy chances H was trying to couple the caboose, but the side link would not slide into the bar. He put his arms around the iron stanchions of the adjoining cars and lapped his hands on the inside of the vertical board next to the stanchions. He then tried to kick the link into place, but it did not yield, so he told the engineer to go ahead a foot. The lever was thrown over and the engine moved up a trifle, but Mr. Miller found out that he could not readily pull his arms out of their position, so something had to give way or the man be pulled in twain. The bones of his right forearm broke, releasing it from its position. The brakemen say they frequently hold themselves up between the cabooses in the same way, but they have learned a new lesson. This accident could not happen between two flats or box cars, as they have no platforms with iron railings.—*La Crosse (Wis.) Republican, Aug.* 11.

RAILROADS OF THE UNITED STATES IN 1882.

[Table from the Introduction to Poor's Manual of the Railroads of the United States for 1883.]

RECAPITULATION BY STATES.

	Railroad.		Steel rail in track	Engines	Cars.			Capital Invested.			Cost of road and equipment	Length of line operated	Passenger train service	Freight train service	Passenger Traffic.		Freight Traffic.		Gross Earnings.			Net earnings	Total available revenue	Payments from available revenue.	
	Total line	Total track			Passenger	B., M. & Ex.	Freight	Share capital	Funded debt	Total investment					Passengers carried	Passenger movement	Freight moved	Freight movement	From passengers	From freight	From all sources			Interest	Dividends on stock
	Miles.	Miles.	Miles.	No.	No.	No.	No.	$	$	$	$	Miles.	Miles.	Miles.	No.	Miles.	Tons.	Ton-Miles.	$	$	$	$	$	$	$
Maine	1,123.23	1,282.03	476.36	122	143	61	2,526	18,040,238	21,325,090	39,820,087	39,162,641	1,003.85	1,432,332	1,506,287	2,009,913	65,072,506	2,059,056	147,972,538	1,716,108	2,611,570	4,568,276	1,321,634	1,513,442	1,037,716	530,602
New Hampshire	890.15	1,059.12	359.99	140	126	60	3,169	17,887,800	7,138,324	27,281,758	25,176,984	638.46	1,162,088	1,649,578	2,412,687	50,823,090	2,742,997	127,474,420	1,365,858	2,303,338	3,943,351	1,233,333	2,266,615	342,582	881,662
Vermont	835.87	980.96	420.80	167	126	64	3,847	22,210,800	18,133,600	40,877,661	38,639,234	883.60	1,527,686	2,306,137	1,298,004	39,014,432	2,846,839	214,683,284	1,382,947	2,766,963	4,365,465	973,098	1,341,251	400,065	325,062
Massachusetts	2,262.82	3,815.60	1,952.57	972	1,346	339	22,178	98,264,678	80,651,124	191,241,132	153,970,932	2,492.62	10,912,977	9,272,155	48,063,639	680,475,195	15,667,852	947,468,835	13,303,095	15,222,631	30,998,451	8,656,514	9,959,636	4,708,186	4,373,980
Rhode Island	147.27	219.85	112.55	45	56	19	479	4,647,871	2,201,675	6,943,300	5,627,831	138.73	576,235	194,074	1,592,482	28,823,297	558,790	16,134,153	702,723	566,801	1,413,968	469,478	491,529	128,702	268,045
Connecticut	973.22	1,319.67	822.71	261	380	155	5,597	36,019,721	9,782,778	47,633,321	46,471,572	1,028.52	3,724,940	3,076,095	9,844,209	242,836,566	4,729,882	226,275,835	4,972,681	5,106,178	10,898,988	3,532,749	3,782,896	598,550	2,328,189
New England	6,232.56	8,677.23	4,144.98	1,707	2,177	698	37,796	197,071,108	139,232,591	353,797,268	309,049,194	6,185.78	19,336,258	18,004,426	65,220,934	1,107,045,086	28,605,416	1,680,009,065	23,503,412	28,577,481	56,188,499	16,487,007	19,354,769	7,215,801	8,707,540
New York	6,722.56	12,093.73	6,425.12	2,329	2,580	540	77,458	427,265,667	288,804,574	740,271,251	670,307,286	6,437.21	23,456,746	32,088,824	131,364,586	3,763,908,614	44,937,406	5,449,697,539	26,621,462	47,177,696	77,528,074	25,548,989	31,886,240	13,410,496	11,207,735
New Jersey	1,863.31	3,072.26	1,456.48	882	1,059	205	40,529	109,369,961	125,819,292	240,902,895	197,833,199	1,709.41	10,083,094	11,873,000	28,579,423	497,390,665	17,021,004	1,482,687,940	9,818,561	21,055,658	32,711,845	11,640,968	13,710,703	6,999,474	3,265,017
Pennsylvania	6,607.79	10,807.95	5,763.26	2,945	1,854	526	161,367	373,804,716	362,295,688	809,734,001	466,048,385	9,664.52	18,195,095	46,069,873	43,379,748	744,603,728	100,862,252	7,249,136,206	19,908,426	78,417,644	104,957,302	38,374,784	52,434,265	18,555,434	18,969,701
Delaware	204.27	233.58	38.60	9	11	5	117	2,813,215	1,500,000	4,341,215	4,309,977	170.00	331,169	357,213	339,207	7,568,397	446,827	16,192,128	214,649	511,595	756,266	263,885	246,866	63,474	91,204
Maryland	1,153.43	1,778.32	951.60	671	486	94	16,978	43,811,401	42,471,590	88,475,123	92,435,610	405.40	937,744	586,933	1,999,478	35,838,630	1,109,639	29,803,863	889,766	824,820	1,923,117	408,048	415,343	553,221	.....
West Virginia	258.25	309.79	144.20	10	7	2	203	13,487,808	4,667,380	18,182,116	12,923,503	168.40	99,888	88,919	182,184	2,811,852	1,395,461	6,367,009	282,766	553,940	844,231	184,415	299,877	55,616	37,000
Middle States	16,809.61	28,294.73	14,819.26	6,846	5,997	1,372	296,652	970,552,708	825,554,524	1,901,996,601	1,443,857,959	18,554.94	53,103,736	91,064,762	205,844,626	5,052,121,886	166,372,589	14,233,884,685	57,735,630	148,541,353	218,720,835	76,421,089	98,993,294	39,637,718	33,570,657
Virginia	2,737.02	3,045.15	1,870.49	479	250	108	10,759	87,003,104	80,438,592	174,975,172	154,640,870	2,611.28	2,979,004	6,051,078	2,676,088	97,220,271	4,842,098	674,687,663	2,867,752	7,672,967	11,536,709	4,153,604	4,282,964	2,979,076	827,116
North Carolina	1,577.79	1,680.42	327.50	142	96	39	1,929	27,984,750	16,472,588	44,871,170	43,085,123	1,322.00	1,134,548	1,331,466	690,743	47,936,956	1,138,023	89,772,663	916,688	2,170,689	3,376,290	800,930	925,677	311,321	389,439
South Carolina	1,516.70	1,635.38	449.93	122	83	53	1,754	16,336,719	24,635,017	41,998,949	40,783,037	1,442.20	1,649,525	2,006,544	912,045	44,840,053	1,148,138	92,422,338	1,203,905	3,274,680	4,866,737	1,243,208	1,362,758	1,200,817	69,600
Georgia	2,370.64	2,999.59	924.71	372	200	143	5,304	36,471,844	36,095,254	72,825,130	61,872,829	2,128.19	2,028,771	4,287,493	1,132,794	87,753,754	2,213,402	269,551,915	2,204,772	5,540,546	8,486,958	2,534,161	3,917,889	1,134,078	1,781,692
Florida	983.97	1,054.69	291.34	64	63	26	715	14,893,800	12,186,200	27,191,194	23,762,424	490.00	98,000	120,000	187,000	6,564,500	413,000	19,460,000	246,100	562,445	876,594	301,540	306,540	130,208	4,400
Alabama	1,808.94	1,962.19	552.18	194	93	52	2,705	30,978,463	36,774,310	68,903,393	61,612,917	1,518.88	1,553,120	2,636,434	972,210	50,112,339	2,718,668	280,213,730	1,451,051	4,681,505	6,506,941	1,748,308	1,748,308	1,596,199	105,000
Mississippi	491.43	512.28	40.96	48	40	12	511	9,065,266	8,235,967	17,674,544	17,670,929	301.43	222,904	316,341	229,030	10,011,500	528,741	25,836,870	282,436	647,326	967,148	321,507	321,507	279,903	.....
Louisiana	1,249.42	1,386.98	954.40	187	379	61	3,325	28,005,600	42,394,000	70,550,578	70,242,976	532.60	1,71[illegible],899	8,067,670	707,985	49,412,250	799,081	107,214,570	1,197,217	1,745,764	5,050,114	1,941,736	1,954,010	804,073	.....
Tennessee	2,193.85	2,389.73	1,022.76	324	165	70	6,597	63,387,763	56,578,500	126,323,124	120,195,150	1,025.82	1,258,598	1,787,843	655,228	51,436,327	2,243,951	172,191,484	1,232,009	2,818,080	4,431,160	1,414,450	1,479,336	1,109,300	409,790
Kentucky	2,498.99	2,889.57	1,117.67	527	291	126	15,919	49,252,038	96,783,228	150,744,624	129,110,231	2,525.03	2,834,687	4,729,351	2,712,388	114,289,886	3,148,994	308,727,738	3,187,442	8,549,602	12,773,588	4,857,095	5,698,095	4,489,616	643,947
Southern Group	17,428.73	19,555.98	7,551.87	2,459	1,660	690	49,518	363,379,347	410,593,656	796,057,878	729,976,486	13,897.43	15,472,056	31,934,220	10,875,511	559,577,836	19,194,006	2,040,078,971	14,789,372	37,663,604	58,872,239	19,316,539	21,997,084	14,034,591	4,230,984
Ohio	7,968.06	10,480.91	6,381.28	2,259	1,121	519	77,635	332,003,456	315,556,836	662,842,308	616,111,849	6,728.10	16,217,148	32,124,902	25,030,862	730,857,457	41,819,449	5,611,095,941	16,219,827	43,343,643	63,689,134	23,206,116	25,581,236	9,693,197	8,108,243
Indiana	6,365.54	7,357.99	3,034.77	1,200	578	306	35,122	146,746,033	144,139,904	295,052,158	277,168,906	6,568.67	11,264,091	21,281,267	10,666,315	397,845,398	19,626,131	2,713,796,604	9,569,985	25,466,846	37,467,778	9,982,824	9,645,955	7,799,763	684,932
Michigan	4,341.34	5,348.47	2,813.47	701	363	155	19,130	79,355,036	84,281,725	170,412,717	170,042,764	3,729.80	6,551,784	9,665,584	7,695,084	327,988,159	12,716,318	1,414,251,586	7,641,619	14,512,579	22,959,356	6,281,282	7,721,005	4,283,978	1,656,578
Illinois	10,655.55	13,328.07	7,779.36	2,522	1,105	483	72,618	273,998,671	286,004,685	560,594,778	505,822,453	12,022.51	17,021,107	35,515,672	22,169,351	87,929,477	32,616,160	4,747,111,293	18,876,595	59,955,819	87,125,034	39,997,331	44,647,538	13,302,562	14,191,112
Wisconsin	5,744.45	6,353.70	1,635.00	726	342	194	21,562	77,605,424	114,969,500	192,822,746	196,838,962	5,186.73	5,258,145	12,618,125	4,659,269	224,512,611	6,216,487	1,031,755,245	5,975,322	15,869,669	23,238,676	9,347,249	9,909,562	5,183,525	6,042,103
Minnesota	4,528.05	5,034.28	2,932.72	565	276	110	19,784	162,413,774	73,273,988	253,949,949	237,607,303	3,733.91	3,388,578	6,974,146	2,675,109	168,196,795	5,923,671	827,112,150	4,835,097	14,027,903	19,729,828	7,580,993	8,861,096	4,155,548	1,786,436
Dakota	151.00	156.75	141.50	1	2	.....	3	2,925,000	2,925,000	5,850,000	5,850,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iowa	2,880.39	3,111.02	1,105.45	209	82	50	5,447	62,229,089	41,145,620	105,352,918	99,752,621	1,406.80	1,147,590	2,209,765	914,038	39,417,439	2,875,298	238,116,659	1,022,497	2,955,830	4,993,808	1,193,329	4,272,302	1,634,307	1,425,757
Nebraska	2,407.35	2,798.54	1,378.65	344	205	79	6,940	64,760,400	134,914,591	202,539,049	166,962,120	1,820.90	2,519,036	6,717,700	981,420	157,527,336	2,101,635	732,791,054	5,197,730	15,402,167	22,823,884	12,096,835	12,295,742	7,789,783	4,260,788
Kansas	3,809.75	4,254.04	1,985.55	473	229	152	12,457	83,134,086	68,901,900	153,967,714	104,476,607	3,414.12	3,152,335	6,024,896	1,470,288	176,219,580	3,067,872	704,052,359	4,915,211	14,052,369	19,908,206	7,883,197	9,377,915	3,456,166	3,862,270
Missouri	6,028.89	6,797.19	3,538.23	704	321	164	19,687	181,692,949	159,662,090	349,323,050	293,442,271	4,572.43	5,786,133	10,249,015	4,329,325	247,541,284	8,854,613	1,425,879,345	6,737,488	21,971,059	31,563,837	14,442,639	15,811,569	9,309,421	2,939,701
Arkansas	1,020.36	1,054.36	414.45	53	50	20	1,053	19,480,034	19,302,937	40,046,318	40,307,404	313.16	364,940	378,035	216,293	13,381,492	225,596	18,712,039	513,810	666,859	1,256,411	289,207	289,207	226,397	.....
Texas	5,714.80	6,158.82	2,032.15	575	320	128	14,728	95,084,280	124,914,611	223,701,146	182,323,744	3,928.60	3,529,895	6,912,673	1,361,597	88,304,276	3,035,037	501,896,258	3,217,312	11,469,811	16,700,989	5,407,657	5,804,420	5,211,283	.....
Colorado	2,156.84	2,314.04	944.95	237	122	66	5,948	49,152,100	39,262,000	88,398,394	87,581,673	1,733.44	2,221,730	3,254,077	771,380	48,546,733	1,713,581	167,376,136	2,476,780	6,634,574	9,726,377	3,659,133	3,696,804	2,204,318	436,121
Wyoming Ter.	315.11	324.00	293 00	11	.....	.....	475	4,730,000	4,000,000	8,730,000	8,730,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Western Group	65,078.48	74,872.08	36,410.53	10,380	5,116	2,426	312,589	1,635,310,332	1,595,255,387	3,314,083,775	2,993,018,137	55,159.17	78,422,512	153,926,547	82,940,331	2,798,268,037	140,791,848	20,133,946,669	87,199,273	246,329,138	361,183,378	141,367,192	157,994,351	74,430,248	45,394,041
California	3,187.08	3,611.79	1,780.40	388	440	105	7,787	141,553,991	135,632,509	289,618,204	268,485,344	3,364.15	3,705,466	7,655,386	9,832,084	287,652,312	3,598,465	931,087,685	8,503,867	17,528,879	29,034,464	9,001,596	14,012,450	6,102,969	3,769,159
N. Mexico Ter.	704.92	732.22	667.22	50	.....	10	777	58,399,100	27,966,534	91,264,220	56,988,121	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	274,541	250,800	.....
Arizona Ter	412.17	538.01	384.17	83	38	13	1,422	20,291,000	9,868,000	30,119,000	29,537,212	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	631,375	576,240	.....
Utah Ter.	1,123.10	1,165.50	275.00	79	59	23	1,171	17,063,860	19,751,000	36,914,860	36,894,249	741.96	498,417	1,006,037	178,242	17,233,053	407,922	59,857,381	807,263	2,718,382	3,742,176	1,803,178	1,803,178	685,816	586,080
Nevada	509.25	567.92	377.20	38	20	8	794	12,797,750	5,456,000	25,714,003	22,788,998	93.30	68,112	45,663	4,127	205,900	15,296	587,567	49,143	82,034	110,440	*def.* 5,087	*def.* 5,087	60,000	.....
Oregon	888.70	936.80	280.80	75	39	21	1,804	38,929,000	14,950,000	55,213,550	45,928,924	733.80	726,152	1,458,494	481,349	46,546,408	1,338,020	219,269,379	1,460,847	4,246,458	5,992,314	2,664,241	2,844,966	773,543	1,296,000
Washingt'n Ter.	37.30	39.40	.....	9	5	.....	141	730,000	155,000	885,000	885,000	21.80	22,500	22,500	14,608	304,606	166,723	3,487,847	11,343	91,002	116,598	68,277	68,277	.....	.....
Pacific Group	6,862.52	7,591.64	3,764.79	722	601	180	13,896	289,764,701	213,779,043	529,728,837	461,507,848	4,955.01	5,020,647	10,188,080	10,510,410	351,942,279	5,526,426	1,214,289,859	10,832,463	24,666,755	38,695,992	13,532,205	19,629,700	8,449,368	5,651,239

RECAPITULATION BY GROUPS OF STATES.

New England	6,232.56	8,677.23	4,144.98	1,707	2,177	698	37,796	197,071,108	139,232,591	353,797,268	309,049,194	6,185.78	19,336,258	18,004,426	65,220,934	1,107,045,086	28,605,416	1,680,009,065	23,503,412	28,577,481	56,188,499	16,487,007	19,354,769	7,215,801	8,707,540
Middle	16,809.61	28,294.73	14,819.26	6,846	5,997	1,372	296,652	970,552,708	825,554,524	1,901,996,601	1,443,857,959	18,554.94	53,103,736	91,064,762	205,844,626	5,052,121,886	166,372,589	14,233,884,685	57,735,630	148,541,353	218,720,835	76,421,089	98,993,294	39,637,718	33,570,657
Southern	17,428.73	19,555.98	7,551.87	2,459	1,660	690	49,518	363,379,347	410,593,656	796,057,878	722,976,486	13,897.43	15,472,056	31,934,220	10,875,511	559,577,836	19,194,096	2,040,078,971	14,789,372	37,663,604	58,872,239	19,316,539	21,997,084	14,034,591	4,230,984
Western	65,078.48	74,872.08	36,410.53	10,380	5,116	2,426	312,589	1,635,310,332	1,595,255,387	3,314,083,775	2,993,018,137	55,159.17	78,422,512	153,926,547	82,940,331	2,708,268,037	140,791,848	20,133,946,669	87,199,273	246,329,138	361,183,378	141,367,192	157,994,351	74,430,248	45,394,041
Pacific	6,862.52	7,591.64	3,764.79	722	601	180	13,896	289,764,701	213,779,043	529,728,837	461,507,848	4,955.01	5,020,647	10,188,080	10,510,410	351,942,279	5,526,420	1,214,289,859	10,832,463	24,666,755	38,695,992	13,532,205	19,629,700	8,449,368	5,651,239
United States	112,411.90	138,991.66	66,691.43	22,114	15,551	5,366	710,451	3,456,078,196	3,184,415,201	6,895,664,359	5,930,409,624	98,752.33	171,355,209	305,118,035	375,391,812	9,778,955,124	360,490,375	39,302,209,249	194,060,150	485,778,331	733,960,943	267,124,032	317,969,198	143,767,726	97,554,461

RAILROAD GAZETTE

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S. WRIGHT DUNNING AND M. N. FORNEY.

EDITORIAL ANNOUNCEMENTS.

Passes.—*All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.*

Addresses.—*Business letters should be addressed and drafts made payable to* THE RAILROAD GAZETTE. *Communications for the attention of the Editors should be addressed* EDITOR RAILROAD GAZETTE.

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections appointments, and especially annual reports, some notice of all of which will be published.*

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.*

LOCOMOTIVE WHISTLES.

In the "existing state of the art" of operating railroads, locomotive whistles are a necessary evil. It is not easy to see how they can be dispensed with, and all that can be done, apparently, is to lessen the annoyance which they cause as much as possible. To some nervous persons this annoyance is a very serious matter, and amounts to acute pain. There are persons who assert that the sound of a steam whistle under circumstances which are often encountered causes them as much pain as would a pin stuck into them. There are others who are not affected at all by the most demoniacal howl or shriek that ever escaped from the brazen throat of a steam whistle. Nothing seems to give the average locomotive runner more pleasure than to have his engine equipped with a whistle capable of uttering the most infernal howl or shriek, or both combined, and then, in the vernacular of the calling, to "whoop 'em up" by blowing the diabolical instrument on every occasion, and on the slightest pretext, and without any pretext, for doing so. It is, perhaps, not remarkable that those who are not nervous have little capacity for sympathizing with those who are. Often the strong and vigorous regard the complaints of those who are nervous as mere affectation, and consequently take renewed delight in "whooping" the complainers "up."

Perhaps few have ever attempted to estimate the suffering which it is in the power of a locomotive runner to inflict who has one of these pain-producing instruments at his command, with full liberty to use it when and how he likes. Take it on the New York & New Haven Railroad, the locomotives of which are equipped with whistles the sound of which seems to combine all the elements which are most disagreeable. The country along that line is now so thickly settled that there is hardly a place along the line where one of these whistles can be blown where it would not be painful to some of the inhabitants, to say nothing of the passengers in the trains. There is a certain zone along that line over which the locomotive runners have it in their power to inflict what in many cases, as has been said, is acute pain. If we substitute as the value of this pain, in a sort of algebraic illustrative way, that which the persons referred to above say it is equal to, and suppose that the locomotive runners have it in their power every time they run their engines over the road to stick pins into the inhabitants within what we will call the "zone of torment," what a picture could be drawn of the suffering inflicted! The tired laborer, the worker whose wearied brain is exhausted, the mother of the household "cumbered with much serving," the invalid over whom sleep has just spread its blessed mantle, the infant whose worldly troubles have, for the time, been obliterated by a similar covering but of more delicate texture, the old, bowed down with the weight of years, the youth renewing his strength by rest, those engaged in social enjoyment, others where grief and pain have converted the comedy of life into tragedy, those who have met together for worship, at all hours and into all scenes, the locomotive runner has it in his power as it were to puncture with pain those who are within his reach and who are susceptible to the direful sound of the brass-throated voice which he controls.

It is perhaps not remarkable that those who have never known what the suffering is which noise can inflict should be inconsiderate, and perhaps never think that they may be inflicting pain. Of course we are aware that in many states railroad companies are required by law to whistle at all road crossings, and that for this the companies are not responsible. To what extent this is a safeguard to those who must use the common roads which cross railroads on the same grade, or to what extent the sound of the whistle is better than the ringing of the engine bell, we are not now prepared to say. The complete cure for the evil, of course, is that there should be no grade crossings. The next most efficacious plan would be to have all such crossings guarded with gates and watchmen or by a system of gates and interlocking signals, all in the care of a signalman. But it will be a long time before we can expect that all crossings, even on our principal railroads, will be guarded in this way. Meanwhile it may be assumed that the whistle must be used to warn persons who travel on the crossing roads of the approach of trains. But even if it is, the questions come up whether the most effective whistles for this purpose are those whose sound is the most disagreeable, and next whether it is not possible, in some way, to lessen the annoyance to passengers in trains from the blasts which are now, on some roads, so continuous. On the line between New York and Boston, the drawing-room cars are placed next the baggage car, which latter is next the tender. In summer, when the windows are open, the constant blowing of whistles, which on this road are especially disagreeable in sound, is a very great annoyance. On the limited train over the Pennsylvania Railroad to Chicago the sleeping-cars are run in the same way. In Ohio and Indiana the laws require the whistle to be blown at every road crossing. It is quite safe to say that the majority of the occupants of the front sleeping-cars of that train do not get their money's worth in sleep while traveling through those states.

Now on both the roads referred to a curiously contradictory condition of things prevails on these trains. The railroad companies and the sleeping-car companies have expended money in the most liberal way to add to the comfort of those who travel in their cars. On the New York & New Haven and Boston & Albany lines, they now have some of the most elegant drawing-room cars in the country. The sleeping cars on the Pennsylvania limited train are not surpassed by any cars on any road. Now if there is any object more than another which should be aimed at in a drawing-room car, it is comfort; and the purpose of a sleeping car is to enable passengers to sleep. It is safe to say, though, that comfort is impossible to a very large proportion of the people who travel in the drawing-room cars at the front end of the train on the New Haven road, and sleep equally is so in the sleeping cars of the Pennsylvania limited train, owing to the hideous howling of the whistle every few minutes. Experience on both these roads has had much to do with the writing of this article, and the query, whether whistles could not be made equally efficacious and less disagreeable in sound, led further to the investigation of the principles of the construction of these instruments.

It was a little surprising, in going over the books on locomotives, that the only thing which could be found in any of them, on the construction of whistles is a short paragraph in D. K. Clark's "Railway Machinery," as follows:

"Whistles are usually of hard brass, the bell being 3 in. in diameter and 2½ in. deep; this size gives the musical note D natural, which is a good pitch for ordinary whistles, and comes well out with 80 lbs. steam; higher pressures produce the harmonic fifth above, a shrill and piercing tone. As the fullness of tone is affected by the pressure in the boiler, the steam should be suitably wire-drawn by the handle. To do so with precision, D. Gooch uses a screw motion and valve. Guard's whistles are made larger, of a decidedly lower tone than the ordinary whistles; a 4-in. bell, 5 in. deep, makes an excellent guard's signal."

So far as we have any knowledge, no railroad or locomotive engineer has ever investigated the important subject of the audibility of whistles. In the report of the United States Light-House Board for 1874, Professor Henry says that in 1855 Prof. J. H. Alexander, of Baltimore, made a series of experiments for the Light-House Board on the audibility of steam whistles to be used as fog signals. According to Prof. Henry:

"He found, what has since been fully shown, that the power of the sound depends upon the pressure of the steam in the boiler, and the pitch upon the distance between the circular orifice through which the steam issues and the edge of the bell. He appears, however, to be under an erroneous impression, that the sound is produced by the vibrations of the metal of the goblet or bell, while in fact this latter portion of the apparatus is a resounding cavity, which, as I have shown in subsequent experiments, may be constructed of wood as well as of brass, in order to produce the same effect."

In 1871, General Duane made a series of experiments at Portland, Me. In his report of them, he says:

"The experimental whistles were of the following dimensions, viz.: 2¼, 3, 4, 5, 6, 10, 12, and 18 in. diameter. Those of 2½, 3, 5 and 10 in. were fitted, instead of the ordinary bell, with long cylinders, provided with movable pistons, so that the effective length of the bell could be altered at pleasure. The pitch of the blast was found to vary with the length of the bell, and the power of the whistle with its diameter. The ratio of the power to the diameter was not accurately obtained, but it is probable that the extreme range of sound of a whistle is proportional to the square root of its diameter."

Commenting on the above Professor Henry said:

"This result, that the pitch varies with the length of the bell, is in conformity with well-established principles of resounding cavities; and that the power should increase with the extent of the aerial reed, the vibrations of which give motion to the resounding air within the cavity, is also, as we have seen, in accordance with hypothetical considerations; but as the density of this stream of steam, and consequently the rapidity of its vibrations, depends upon ths pressure of the steam in the boiler, a perfect whistle should have the capability of changing its dimensions, not only in relation to the width of its throat, but also in regard to the pressure of steam in the reservoir."

General Duane, in his report, says further:

"The pitch giving the greatest range appears to be at the middle of the scale of sound. It is certain that a good result cannot be obtained from either a very shrill or a bass note. This remark is applicable to all varieties of signal.

"The 10-in. and 12-in. whistles are recommended for ordinary use. The 18-in. whistle is more powerful, but the increase of power bears too small a proportion to that of the expenditure of fuel to render its employment generally advisable. The best results were obtained by giving the whistle the following proportions: The diameter of the bell equaling two-thirds of its length, and the set of the bell, *i. e.*, the vertical distance of the lower edge above the cup, from one-third to one-fourth of the diameter for a pressure of from 50 to 60 pounds of steam."

It is to be regretted that the experiments were not made with greater pressure of steam, as on locomotives it is double that given by General Duane.

The experiments were made to determine the best form and proportions of whistles to be used as fog signals, and the dimensions recommended are obviously larger than are needed on locomotives. The rule which he gives for proportioning whistles will be useful, and the fact that neither a very shrill nor a very bass note is best, but that one about halfway down the scale can be heard furthest, will be a guide to locomotive builders. But besides being heard at a distance, it is important that, on freight trains especially, a whistle should be audible amid the clatter and din of a train in motion. On the Hudson River Railroad, some years ago, whistles having a very low tone were used, when it was found that they could not be readily heard amid the noise of the train. The bells were consequently partly filled up with wood, which made their sound more shrill, and remedied the evil.

It appears then that the thing to aim at is a whistle with a tone not too low nor too shrill, but about midway in the scale of sound. It is not quite clear though what effect the steam pressure has on the sound. Professor Alexander concluded that the "*power* of the sound depends upon the pressure, and the *pitch* upon the distance between the circular orifice through which the steam issues and the edge of the bell," whereas Professor Henry says that the "rapidity of the vibrations of the stream of steam depends upon the pressure." From the first authority it may be inferred that the pitch is not affected by the pressure; but if according to Professor Henry, the rapidity of the vibration of high-pressure steam is greater, then the pitch must be higher. Nothing is said either regarding the width of the circular opening from which the steam escapes.

An elaborate series of experiments of a similar character were made in 1873 by Prof. Tyndall under the auspices of the British Trinity House, which may shed some light on these points, but his report is not accessible to us as we write.

Of course the main question for consideration is the safety of railroad trains. It is unfortunate that so many persons are compelled to suffer from the sound

of locomotive whistles, but if it can be shown that the blowing of whistles is essential to safety, then the suffering of the nervous people is not likely to be ended very soon. On many roads there is a great deal of unnecessary use of the whistle, and what we want to call attention to here is, first, the pain which is caused in this way. Next it is important to know which is the best kind of whistle to use. The latter is indicated by the experiments quoted from.

It appears as though something might be done to diminish the effect of the sound of the whistle on passenger trains. A deflector behind the whistle has been suggested. A better plan would seem to be to attach the whistle to the front of the chimney, as often is done on steam-boats. This would move it further away from the cars, and the chimney would act as a deflector to the sound, throwing it forward and keeping it away from the rear of the train. On engines on which the extended smoke-box is used there is plenty of room for the whistle between the head-light and the chimney. Finally, if all railroad managers would prevent as far as possible the unnecessary use of the whistle, things would be very much improved without being entirely reformed.

STATE RAILROAD COMMISSIONS.

There have been "railroad commissions" in some of the states from a very early date. In 1855 there was one in New York which issued a report in two large volumes, one giving the profiles and alignments of all the railroads in the state—valuable information which is not now attainable in any other publication. But for the most part until after the war there was no railroad commission which was much felt or widely known in the community. But within the last 15 years not only have commissions been established in many states, but they have attracted much attention, investigated many questions that arise in the relations of the railroads to the public, published voluminous reports, some of which contain carefully compiled and valuable statistics, and in a few states exercised a very considerable influence on the conduct of railroad business. At this time there is a railroad commission in every Northern state west of Colorado except New Jersey, Pennsylvania, Indiana and Nebraska; and in the South, where the institution is but a few years old, Virginia, South Carolina, Georgia, Alabama, Tennessee and Kentucky have commissions. The public has come to look upon them as a means by which it can in some degree regulate and restrain corporate management and prevent abuses from which it might suffer. This view evidently gains ground, for while in 1870 there were but two states, Ohio and Massachusetts, which had railroad commissions which attracted any public attention, since that time they have been established in nearly every Northern state, and nearly every year a new one is established—one in Kansas and one in Tennessee this year, in New York last year, in Alabama in 1881, etc. Moreover, in many of the states which have no commission there is a nearly successful attempt to establish one at every session of the legislature, as in Nebraska, Colorado, Texas and Indiana very recently.

What is the nature and the operation of this comparatively new but widely prevailing and growing institution? The workings of one of the oldest and by far the most influential of them, the Massachusetts Commission, was recently told in these columns by Mr. Wm. A. Crafts.* This sets forth the authority, working, and the achievements of one type of railroad commission, and the one which has been most regarded in the legislation for the commissions established since 1870. It is the best single answer to the question: What is a railroad commission?

Our state railroad commissions, however, are not all alike, by any means. A summary of the railroad commission laws of the several states, soon to be published, shows marked differences in their powers and functions.

The first of the state railroad commissions now existing which made any noise in the world is the Ohio Commission, whose first report was for the year 1867. Gen. George B. Wright, afterward President of the Atlantic & Great Western, and, later, Receiver of the Indiana, Bloomington & Western, was the first Commissioner there, held the office for several years, and made some investigations of and reports upon matters of practical importance and public interest which received some attention at the time.

The prototype of the modern railroad commission, however, is undoubtedly the Massachusetts Commission, whose doings Mr. Crafts has so well sketched. It was fortunate in having on it a publicist of great independence and force of character as well as intelligence, who made a serious study of the relations of the railroads to the public—a question which scarcely any one in this country had studied profoundly—and who, morever, was gifted with a clear and forcible style, which made his reports readable. Mr. Adams' essays on "The Railroad Problem," given yearly in the Massachusetts reports, came at a time, too, when there was a great outcry in the Northwest against the railroads, and this is another reason why they were generally read.

Considering what the early Northwestern commissions were, it might be said that Mr. Adams' essays had very little immediate effect, except to cause the legislatures to call "railroad commissions" the tribunals which they set up to regulate or restrain the railroads in their relations to the public. But, in fact, these bodies usually had substantially all the powers of the Massachusetts Railroad Commission, and differed from it chiefly in having a great deal more beside. There has been and still is a very general misapprehension as to the work of the best known railroad commissions, and to-day the prevailing belief doubtless is that the Massachusetts, Michigan, Wisconsin, Minnesota and Iowa commissions have power to say what the railroads may charge for their services. This misapprehension extends to the British Railway Commission, which is of more recent creation than many of our state commissions* and has very little in common with them except its name. Yet the leading New York newspapers when it was proposed to establish a railroad commission of the Massachusetts type in New York argued in favor of the proposition that the "Railway Commission" had worked well in England, which is about as apropos as to cite the usefuluess of the Court of Arbitration in New York or the distinguished services of Mr. Albert Fink as a "Commissioner" as evidence in favor of a Railroad Commission.

Without going into the history of the railroad commissions of this country, but considering only their present development, we may distinguish three different kinds. The oldest of these, but the least known, because it has had little to do, or has done little, is a body appointed to do some special or formal work, or intrusted with powers of inspection or the like, which it exercises at its own discretion, but actually scarcely exercises at all, or so little that its existence is hardly felt. For instance, there was a so-called "railroad commission" in Tennessee in 1870, with power to sell or lease railroads which were in default to the state for loans made them before the war—a temporary purpose. In Arkansas not long after the war, when the state was loaning its bonds to new railroads, three state officers were made a "railroad commission," to hear and decide upon applications for state aid. In New Jersey the Comptroller, Treasurer and Commissioner of Railroad Taxation form a "railroad commission" to appraise the property of railroad companies which do not make returns of such property. None of these have any of the regulating or inspecting powers which are generally characteristic of state railroad commissions.

The older commissions which are least known, and have usually been least active, seem to have been originally almost solely inspectors, who exercised their functions and made their reports at their discretion, and usually did very little in either direction. Several of these have made much fuller reports since the Massachusetts Commission became so widely known and influential, and have had their powers and duties increased. All the New England commissions (and there is one in each state) were of this character originally, we believe, including the Massachusetts Commission, or a Massachusetts Commission. In Maine the commissioners actually executed inspecting functions to the point that many years ago they ordered train service suspended on a line until certain repairs should be made, resulting in the abandonment of the road, we believe. In New Hampshire the duties imposed on the commissioners by law could only be properly performed by a corps of experts, the result of which has been, of course, that their reports have been chiefly formal and apparently have had very little effect. The Vermont Commission is less heard of than any other, and its reports, if it makes any, apparently do not usually come to light. The Connecticut Commission of late years has been an active body and issued a voluminous report. But the New England States are too small for any one of them to contain the whole of an important railroad system; only Massachusetts has an important railroad terminus; and to this day New England railroads are mostly small, and its traffic different in character from that of most other parts of the country. Massachusetts, having the terminus of a true trunk line, has been the only fair field for the exhibition of what we may call national railroad phenomena.

The Ohio Commission, the oldest of the Western railroad commissions, was probably based on the earlier New England commissions. It was, and indeed still remains, primarily an inspecting authority, designed to secure the safety of the railroads—to reduce liability to accident. But it was, with General Wright as the first Commissioner, active in its first years, and made reports which attracted some attention before the Massachusetts Commission was well known. At present its powers apparently do not differ greatly from those of the Massachusetts Commission, but its reports have had little discussion of value on the relations of the railroads to the public.

The distinguishing feature of the Massachusetts type of commission is not its authority, but its want of authority. Its duties are chiefly to investigate complaints, to report on these and on all other railroad affairs which affect the community and *to make recommendations* to the Legislature. How great an influence has been exerted in this way with regard to rates and accommodations by a body which has no authority to dictate rates or accommodations is well shown in Mr. Crafts' paper and has been insisted upon with great force by Mr. Adams in the Massachusetts reports and before committees of Congress and elsewhere. Of the way in which this influence is exerted we shall have more to say hereafter.

The third variety of American railroad commission was born in the Northwest of the "Granger" agitation about 1870, and is purely an American product; but its home is now chiefly in the South and not in the Northwest, where some of the original commissions have been greatly modified. This is the commission with authority to dictate rates, or in charge of the execution of laws which limit rates closely. The first were in Illinois and Wisconsin, and the constitutionality of the laws giving such powers over rates was contested to the last, with the result that it was affirmed. Afterwards the California Commission was established, with almost unlimited powers in this direction. Iowa once had such a commission, but, like Wisconsin, has changed it for one of the Massachusetts type; but the Illinois Commission has still authority to dictate rates, and so has the more recent Missouri Commission, and the Kansas Commission has powers which give it power to declare, after investigation of a complaint that rates are excessive or unjust, what are reasonable rates in that case, which will be *prima facie* evidence in the courts of what is a reasonable charge—a greatly modified authority over rates. In the South, the Georgia Commission has almost absolute authority over rates. The South Carolina Commission, which until this year was of the Massachusetts type, has been given power over rates similar to that of the Georgia Commission. The Alabama Commission, not yet three years old, has power something like the power of "homologation" of the French Minister of Public Works: all tariffs of rates must be submitted to it, and are legal only if it approves.

We have said that the commission with authority to dictate rates is a purely American product. Not but that great powers over rates are exercised by governments elsewhere, and indeed in almost all European states except England. But such arbitrary power is exercised nowhere out of the United States. In France, the authorities can refuse to permit new schedules of rates, and limits of charges are fixed by law; but the government cannot make a schedule of rates and impose it upon the railroads, and, in fact, nothing is done without consultations and negotiations between the companies and the authorities. In France, too, the government is represented, not by citizens without any special knowledge of railroad business, but by a large and highly-trained corps of experts, from which the railroads themselves obtain their chief officers. In Germany, changes in rates by the authorities, in the days when the corporation railroad system was still so extensive that the state railroads could not dictate rates nearly everywhere, as they can now, were made only after investigations lasting for many months, during which there were scores of conferences with the railroad officers, state and company, with commercial bodies, associations of railroads, etc., reports of committees and experts covering all points and interests, and the utmost pains to avoid injury to the interests of the railroads, or any special industry, as well as the community at large. We have before us, as we write, a report of the proceedings and resolutions of "the Standing Committee on Rates of the German Railroads and the Representatives of Freight Shippers" on modifications of the general basis of the German freight tariff—a volume of 240 pages, giving reports of meetings, held from Nov. 13, 1878, to Feb. 13, 1880, in which modifications of classification alone were

* "Ten Years of a Railroad Commission." *The Railroad Gazette*, p. 367, June 8, and p. 388, June 15, 1883.

* The act establishing it was passed in July, 1873.

chiefly considered; and all changes made there have been trifling compared with the sweeping ones introduced by some of our state commissions with but the slightest consultation with those who perform the service for which the commissions fix the price. Further, the authority, whatever it may be, which European states exercise over railroads was one of the conditions of their establishment, and was so understood. Again, as against the control (more apparent in matters affecting construction, equipment and operation than in rates) which the European states exercise over railroads must be set the protection which they afford. An American company may construct a railroad through a territory which it is abundantly able to serve alone, receive little or no interest on its capital for years, while the country is growing and its traffic developing, and when the business has become large enough to give it ample support and begins to pay interest for the previous years, new lines may be built on either side which will indefinitely postpone the day when the investors will receive their reward. On the continent of Europe this is not permitted. The railroad is required to afford adequate service, and its charges are limited, though not so much so but that dividends of 12 and 14 per cent. are often made, but it is protected in its territory. But our commissions with authority to prescribe rates have no authority to prevent the construction of parallel railroads, and the community in states where such commissions exist are most eager to have such competing lines established. The rates, in fact, are there established by one party only—the buyer. The commission represents him and him only. The seller is left without any voice in fixing the wages for which he must work.

Where commissions with power to dictate have been preferred to commissions of the Massachusetts type with power only to investigate, report and recommend, the reason given for the preference usually is that corporations have no regard to recommendations, and that nothing short of an order which the sheriff can enforce will avail to restrain railroad abuses. Mr. Adams and Mr. Crafts have shown very clearly that the power to investigate and report and recommend has in fact been effective in Massachusetts. But less credit than it deserves has been given to the effectiveness of this type of commission, because the public has not clearly seen why it is effective. It is not by any means because corporations have feelings which are peculiarly sensitive to public opinion, but because they know that behind public opinion, when formulated after thorough investigation by a capable and independent tribunal, there lies a power which it is impossible to resist; and that if they take no heed to recommendations made by such a body with a full statement of the reasons for them, they are likely to be compelled by law to do what is recommended, and suffer from other legal restrictions. Thus they do what they do not wish to do to save themselves from a worse evil, and not at all because stockholders, directors or officers suffer particularly because public opinion is against them.

Railroad managers have seen the establishment of railroad commissions with much apprehension, which in several cases has been justified. Now, however, many of them feel that there is advantage in a commission of the Massachusetts type. They would prefer, perhaps, that there should be no such public supervision, but they have become convinced that the public will in some way hold them under restraint, and they know that many acts indispensable to the economical conduct of railroad transportation are likely to be condemned by the public and to lead to legislation from which the railroads would suffer greatly, unless the public can be satisfied that such acts are just and necessary, as it may be by an intelligent tribunal which investigates the facts.

Any one who has studied the course of railroad legislation in European countries must, we think, come to the conclusion that here as elsewhere the railroads will eventually have to submit to some kind of state supervision. It is idle to argue the question of the advantages or disadvantages of such supervision. It is inevitable, and must be put up with. It therefore becomes of the utmost importance to our railroads that the tribunals which the state or the nation sets up should not possess unreasonable powers, and should be composed of men of character, and capable of understanding the questions which they investigate and report upon. No despot in modern times exercises the arbitrary and absolute powers over property rights which have been given to some of our state railroad commissions. But these should not be confounded with those whose power consists chiefly in keeping the public and the legislatures informed of what is good and bad in the management of the railroads.

July Accidents.

Our record of train accidents in July, given in full in another part of this paper, shows for that month a total of 119 accidents, whereby 57 persons were killed and 204 injured. The record is a pretty long one for a summer month.

As compared with July of last year, there was an increase of 27 accidents, of 39 in the number killed and of 148 in that of injured.

The record includes 46 collisions, in which 40 persons were killed and 93 injured; 68 derailments, in which 16 persons were killed and 108 injured, and 5 other accidents, in which one person was killed and 3 injured. Eleven of the killed and 40 of the injured in the collisions were railroad employés, as were 14 of the killed and 42 of the injured in the derailments, and also the one person killed and one of the injured in the other accidents. The record includes one accident in which a large number of persons were killed, and several in which the number of injured was considerable.

These accidents may be classed as to their nature and causes as follows:

COLLISIONS:		
Rear collisions	26	
Butting collisions	19	
Crossing collisions	1	
		— 46
DERAILMENTS:		
Broken bridge	4	
Spreading of rails	6	
Broken wheel	7	
Broken axle	5	
Broken truck	1	
Accidental obstruction	3	
Cattle	3	
Wash-out	5	
Land-slide	1	
Wind	5	
Misplaced switch	4	
Rail removed for repairs	1	
Flying switch	1	
Running off end of siding	1	
Purposely misplaced switch	2	
Unexplained	19	
		— 68
OTHER ACCIDENTS:		
Boiler explosion	1	
Broken coupling rod	2	
Broken crosshead	1	
Accidental obstruction not causing derailment	1	
		— 5
Total		119

Nine collisions were caused by mistakes in giving or receiving orders or by failure to obey them; three by failure to use signals; three by misplaced switches; three by runaway engines; four by trains breaking in two; two by fog; two by cars run from sidings upon the main track, and one by the wreck of a train upon another track.

One of the broken bridges failed on account of a fire, which partly destroyed and weakened it.

A general classification of these accidents is as follows:

	Collisions.	Derailments.	Other.	Total.
Defects of road	..	10	..	10
Defects of equipment	6	14	4	24
Negligence in operating	35	7	..	42
Unforeseen obstructions	5	16	1	22
Maliciously caused	..	2	..	2
Unexplained	..	19	..	19
Total	46	68	5	119

Negligence in operating was thus the direct cause of 35.3 per cent. of the whole number of accidents, and was, without doubt, the real or remote cause of a number of others which are included under other heads.

A division according to classes of trains and accidents is as follows:

Accidents:	Collisions.	Derailments.	Other.	Total.
To passenger trains	3	19	2	24
To a pass. and a freight	19	..	..	19
To freight trains	24	49	3	76
Total	46	68	5	119
Casualties:				
Killed by	40	16	1	57
Injured by	93	108	3	204
Total	133	124	4	261

This shows accidents to a total of 165 trains, of which 46, or 27.9 per cent., were passenger trains, and 119, or 72.1 per cent., were freight trains. This shows doubtless a larger proportion of accidents to passenger trains than is really the case, as freight train accidents are much more likely to escape notice and report than those to passenger trains.

Of the total number of accidents 80 are recorded as happening in daylight and 36 at night, while in 3 cases the time is not definitely given. As the daylight begins to grow shorter the number of night accidents will naturally increase. The proportion of night accidents is hardly as large as might have been looked for, considering that some of the risks attending the movement of trains are increased by darkness.

The persons killed and injured are divided as follows:

	Killed.	Injured.	Total.
Employés	26	83	109
Passengers	31	121	152
Total	57	204	261
Per cent. of employés	46	41	42

Of the 46 collisions, 7 caused death and 16 injury; of the 68 derailments 12 caused death and 13 injury, while of the other accidents 1 caused death and 2 injury. In all 20 accidents caused the death of one or more persons; 31 caused injury but not death, while in the remaining 68, or 57.1 per cent. of the whole number, there was no injury serious enough to be recorded.

The number of carelessly misplaced switches reported for the month—four derailments and three collisions, seven in all—is somewhat less than usual. There were two malicious derailments, both caused by the misplacing of switches also.

The causes of derailment do not appear to call for special notice, although there is a somewhat unusual number resulting directly from elemental causes, and the prevalence of cyclones and violent storms which has marked the entire summer. The number of broken wheels and axles is also large for a summer month, and again suggests the overloading of cars as possibly a more frequent cause of accident than is always suspected.

Perhaps the most marked feature of the record is the unusual number of butting collisions, which were nearly one-sixth of the whole number of accidents. Nearly one-half of these accidents are attributed directly to mistakes in giving or receiving train orders, or to failure of trainmen to obey them properly. These are peculiarly accidents of management, and their large number is not an encouraging sign.

The worst accident of the month, that at Carlyon, was on a road generally free from trouble of this kind. It belongs to a class of accidents not infrequent, which result from the movement of cars from sidings upon the main track, either by natural causes or maliciously, and which are very difficult either to foresee or prevent. Some of them doubtless might be prevented by greater care in setting brakes on cars left on sidings or by greater watchfulness on the part of station agents. The latter, however, is not always possible at remote stations where the force is small, or where there is no agent. A more certain remedy was suggested last week, to which this accident may call attention.

For the year ending with July the record is as follows:

	Accidents.	Killed.	Injured.
August	139	46	218
September	153	34	136
October	136	47	132
November	125	36	129
December	148	29	209
January	168	55	199
February	184	61	186
March	242	13	137
April	106	26	114
May	120	28	77
June	91	38	95
July	119	57	204
Total	1,631	470	1,836
Total, same months, 1881-82	1,313	392	1,407
" " " 1880-81	1,444	412	1,665
" " " 1879-80	858	209	799

The yearly average for the four years was 1,312 accidents, 371 killed and 1,427 injured, an average considerably below the totals for this year.

The number of accidents in July was exceeded in nine other months of the year. The number of killed was exceeded in only two other months, and that of injured in only one month.

The averages per day were, for the month, 3.84 accidents, 1.84 killed and 6.58 injured; for the year 4.47 accidents, 1.28 killed and 5.03 injured.

The average casualties per accident for the month were 0.479 killed and 1.714 injured; for the year, they were 0.288 killed and 1.126 injured.

The averages per month for the year ending with July were 136 accidents, 39 killed and 153 injured. July was somewhat below the average in the number of accidents reported, but much above it in killed and injured, the month having been marked by an unusual number of fatal accidents.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Bellaire, Zanesville & Cincinnati.—Extended from Danford, O., west to Freedom, 8 miles. Gauge, 3 ft.

Chicago, Burlington & Quincy.—This company's *Nemaha Line* is extended from Tecumseh, Neb., west to Beatrice, 33 miles.

Illinois Central.—Track on the *Yazoo City Branch* of the *Southern Division* is extended northwest to Flora, Miss., 14 miles.

Monson.—Completed from Monson Junction, Me., to Monson, 6 miles.

Northern Pacific.—The *National Park Branch* is extended southward to Yellowstone, Mon., 15 miles.

Oregon Railway & Navigation Co.—Track is laid on the *Moscow Branch* from Palouse Junction, Wash. Ter., east by north, 44 miles.

Pittsburgh, McKeesport & Youghiogeny.—Track laid from Pittsburgh, Pa., eastward to McKeesport, 16 miles.

This is a total of 136 miles of new railroad, making 3,078 miles thus far this year. The total new track reported in our columns up to the corresponding date for 12 years past has been as follows:

	Miles.		Miles.
1883	3,078	1877	1,013
1882	5 9-4	1876	1,273
1881	3,459	1875	613
1880	2,853	1874	962
1879	1,476	1873	1,252
1878	1,049	1872	3,962

The new track so far reported is a little over one-half the mileage of 1882.

CHICAGO THROUGH RAIL SHIPMENTS EASTWARD for the week ending Aug. 14, by all lines, have been as follows for the past four years:

	1880.	1881.	1882.	1883.
Tons	38,646	56,291	22,921	32,432

Thus the shipments this year were 9,511 tons (42 per cent. *more* than last year, but 23,859 tons (42 per cent) *less* than in 1881, and 6,214 tons (16 per cent.) less than in 1880. The six roads that were in operation last year, however, carried but 26,459 tons this year, which is but 3,538 more than last year, and is 29,832 less than in 1881, and 12,187 tons less than in 1880, and *their* earnings from this freight were at the rate of $1,000 this year to every $1,753 in 1880, $1,277 in 1881, and $866 in 1882. The percentages of the

total shipments carried by each road for the last two years have been :

	G. T.	M. C.	L. S.	Ft. W.	C., St. L. & P.	B. & O.	C. N. Y., C. & A.	C. St. L.
1883	10.0	14.2	16.3	22.2	11.1	7.8	13.6	4.8
1882	3.2	23.8	22.7	31.8	9.1	9.4	....	....

The shares that the several roads are entitled to have not yet been fixed.

For seven successive weeks the Chicago shipments have been, in tons:

Week ending.						
June 30.	July 7.	July 14.	July 21.	July 31.	Aug. 7.	Aug. 14.
30,718	23,584	27,456	27,603	24,453	33,487	32,432

The shipments of the second week of August are a trifle less than those of the first week, but with that exception they are the largest for 12 weeks. It was not till after the middle of August that there was any considerable increase in shipments last year.

For the week ending Aug. 21, the incomplete statement of through and local shipments eastward of grain, flour and provisions reports a total of 29,176 tons, against 18,113 tons in the corresponding week of last year, and 26,808 in the previous week of this year. The Nickel Plate took 1,585 tons (5.4 per cent.) last week, and the Chicago & Atlantic 4,395 tons (15.1 per cent.). The shipments of flour were 1,019 tons less than last year, and of grain 5,378 tons less, but the provision shipments were 6,699 tons (115 per cent.) more, and were even 3,605 tons more than in 1881, when the total shipments were 21,086 tons more than this year. The shipments last week, though small, are the largest for many weeks.

NEW YORK TO LOUISVILLE VIA SAVANNAH seems a very roundabout route, but shipments of freight by this route have been made recently in considerable amounts, taken to Savannah by the steamers controlled by the Central Railroad of Georgia and thence by this railroad, the Western & Atlantic, the Nashville & Chattanooga and the Louisville & Nashville. From Savannah to Louisville by this route is 769 miles; from New York to Savannah by sea is about 800 miles. The direct rail route from New York to Louisville is 863 miles. Thus after the freight has made the voyage of 800 miles from New York to Savannah it is only 94 miles nearer to Louisville than when it started. Moreover the route being long, and half of the way by sea, shippers will not pay as much as by the direct rail route. Actually, first-class freight, the rate on which by trunk lines is 83 cents per 100 lbs. to Louisville, is carried by way of Savannahf or *forty cents*. This enormous reduction from the regular rate attracts considerable freight and may cause some trouble. It cannot possibly add much to the net income of the lines which carry it, even should it not lead to reprisals, as it almost certainly will if continued. In the division of the rate the Savannah steamers are said to be allowed the proportion for 200 miles of railroad, which would give the railroads from Savannah to Louisville about 32 cents per 100 lbs. for their haul of 769 miles. For low-class freight this might be a good enough rate; and though it is first-class, there may be some profit in the business for the railroads so long as it does not cause a decrease in some other earnings. But it makes a striking contrast with rates to the interior points on the same route. From New York to Atlanta, for instance, the first-class rate is $1.25. The Atlanta people but recently petitioned for some reduction on this rate, but were told that the railroads could not afford to grant it. Now the people of Atlanta see car-loads of freight which pass through their city and go 474 miles further pay $80 per car, while those which stop there pay $250. And the road which collects $250 per car for what stops at Atlanta accepts $48 for the same haul on what goes on to Louisville.

THE BRITISH PARCELS POST is attracting general attention from the newspapers of this country, which universally, so far as we have observed, regard it as original with the British government. This is curious evidence of the extent to which identity of language causes this country to be much more affected by events in England than by those in any other country. The British parcels post is substantially a copy of a German institution that has been in existence for years in Germany and Austria and has recently been introduced into France. Germany in its extent and the nature of its railroads is much more like this country than Great Britain is, and this country is full of Germans who have had experience with the postal express there, but we have never seen any mention of it except in our own columns, where we have several times called attention to it. It has doubtless been an extremely convenient arrangement, cheaper for small packages than our express service, and any country that has once felt the benefits of it will hardly permit it to be given up, and that without much regard to its cost to the government. In Germany it is delightfully cheap, because the railroads are required by their charters to carry the "mails" free, and when the government decided to put a large part of the freight of the country into the mail it had nothing to pay for its transportation. In Germany the rate are for "zones"—distances within 100 miles so much, 101 to 200, so much, etc. Great Britain is so small that a uniform rate is practicable and has been adopted for all distances—3d. for one pound, 6d. for three pounds, 9d. for five pounds, and 12d. for seven pounds between any two places in the United Kingdom. The government delivers at the address on the parcel, but does not collect parcels. The result will probably be a great diversion of trade from the smaller towns to the larger ones.

THE NEW WHEAT CROP is now coming forward quite freely, beginning apparently about three weeks later than last year. For the week ending July 28 the wheat receipts at the Northwestern markets were 938,932 bushels, they rose to 1,546,574 in the week to Aug. 4, to 2,232,644 in the week to Aug. 11, and last week were probably nearly 2,800,000 bushels. They were larger than last year or in 1881 in the week to Aug. 11, while for the three weeks next previous they were but 3,099,076 bushels this year, against 10,546,622 last year; 4,677,051 in 1881, 9,421,027 in 1880, 7,812,157 in 1879, and 5,953,640 in 1878.

The effect of the movement is felt most at this time by St. Louis and Toledo in the West and by Baltimore in the East. In the second week of August Baltimore received more wheat than all the other Atlantic ports together. At this season it receives largely from the Baltimore & Ohio's great system of lines east of the Ohio, and probably a good deal from the Pennsylvania's also, while the same roads drain the country west of the Ohio where most of the winter wheat is grown.

The total grain movement continues light, however, and the exports are the smallest for six years.

LAKE RATES reached their highest point on Thursday of last week, when the quotations were 3¾ cents a bushel for corn and 4¼ for wheat from Chicago to Buffalo, though few, if any, cargoes of wheat were taken. The rates fell off ¼ cent on Friday, and this week have been 3¼ cents for corn and 3½ for wheat.

Canal rates meanwhile have advanced further to 4⅝ cents a bushel for corn and 5½ for wheat from Buffalo to New York.

Ocean rates are lower, going down Wednesday last to 2½d. a bushel for grain by steam from New York to Liverpool, which is but half what was paid three weeks ago.

THE SCRAP HEAP.

Locomotive Building.

The Baldwin Locomotive Works in Philadelphia are building some heavy freight engines for the Norfolk & Western and Shenandoah Valley roads.

The Cumberland (Md.) *Civilian* of Aug. 19 says: "Messrs. Sebastian Brown and Skipwith Wilmer filed a bill in the Circuit Court of Baltimore, Thursday, as counsel for Wm. Keyser and J. T. Mason, against Thomas H. Paul & Son and W. Hollingsworth Whyte, trustees, asking the appointment of a receiver to sell the Paul Locomotive Works. An answer was filed by the trustee consenting to the appointment of receivers. The property was offered for sale at the Exchange last April by Mr. Whyte, the trustee, by order of the Court, but a satisfactory bid was not obtained; now that the sale is proposed to be made by consent of all the parties interested it is understood that there is a purchaser ready to buy the works and carry on the business."

Car Notes.

The Jackson & Sharp Co., in Wilmington, Del., has recently shipped 10 first-class cars to the Pittsburgh, McKeesport & Youghiogheny Railroad; 10 passenger cars to the Delaware, Lackawanna & Western road, of their standard pattern of that road, and three coaches to the Rochester & Pittsburgh. The shops are now working on some foreign orders for Cuba and Brazil.

The new shops of the United States Rolling Stock Co. at Calumet, near Chicago, were destroyed by fire on the night of Aug. 15. The fire started in the planing mill and consumed all the buildings except the office. The loss is estimated at nearly $500,000, including 60 completed cars and a large stock of lumber, besides the buildings, tools and work in progress.

Bridge Notes.

The Dominion Bridge Co. in Montreal has taken the contract to build the new bridge over the St. John River between St. John and Carleton, N. B. The bridge will cross the river at the falls, where it is very deep and narrow. It will be 650 ft. long, the main span being 420 ft. The work is to be finished in one year.

Iron Notes.

Mary Furnace, at Lowellsville, O., owned by the Ohio Iron & Steel Co., is making 100 tons of pig iron a day.

The new works of the E. T. Barnum Wire & Iron Co. in Detroit, Mich., are nearly finished, and will probably be started up in September.

The Redstone Coal Co. intends to build a rolling mill at Hill's Bridge, Pa., on the Redstone Branch of the Pennsylvania Railroad.

The iron rail mill of the Montour Iron & Steel Co. in Danville, Pa., is to be converted into a spike mill.

The Oxford Furnace property in Campbell County, Va., was recently sold to Miss Deborah Cutler for $8,500, which is considered a very low price.

Manufacturing Notes.

The Westinghouse Machine Co. in Pittsburgh has recently put up engines of 100 horse-power for R. H. Brown & Co., of New Haven, Conn., and in the wire-drawing mill in the Gautier steel department of the Cambria Iron Works.

The ship-yard of Samuel Cramp & Sons on the Delaware River is building an iron steamer for the Pacific Improvement Co., of San Francisco; an iron steamer to go to Honolulu, and a large iron tug-boat for the Chesapeake & Ohio Railroad Co., for service at Newport News.

The Yale & Towne Manufacturing Co., at Stamford, Conn., is building a large steam crane for the Baldwin Locomotive Works, which will be driven by a Westinghouse reversing engine.

The Rail Market.

Steel Rails.—The market is steady at $38 to $39 per ton at mill for summer or fall delivery. Inquiries are reported for some large lots for winter delivery, but no sales, the parties differing somewhat as to price.

Rail Fastenings.—Spikes continue unchanged at $2.60 per 100 lbs. in Pittsburgh, and track-bolts at $3 to $3.25. Splice-bars are steady at 1.90 to 2 cents per pound.

Old Rails.—The market is more active, and old iron rails of good quality are held firmly at $23 per ton at tidewater, with a few sales reported.

Fast Time.

One day last week, according to the Wilmington (N. C.) *Review*, the fast mail train on the Wilmington & Weldon road made the run of 162 miles from Weldon to Wilmington in 3 hours and 15 minutes, making four stops. This is at the rate of 45.2 miles an hour, without allowing for stops, and is the fastest time ever made over the road. The train was drawn by engine No. 33, Winfield Taylor, engineer. The number of cars is not stated.

British Rail Exports.

For the month of July and the seven months then ending the exports of steel and iron rails from Great Britain are reported as follows by the Board of Trade, in tons of 2,240 lbs :

	July			Seven months		
To the United States:	1881.	1882.	1883.	1881.	1882.	1883.
Iron rails	6,728	46	.....	71,813	20,613	2,399
Steel rails	20,096	18,200	5,547	112,842	119,434	35,403
Total	26,824	18,246	5,547	184,655	140,047	37,802
To all countries:						
Iron rails	9,512	2,417	2,279	89,939	36,013	18,570
Steel rails	65,100	74,878	64,071	332,487	432,696	456,024
Total	74,612	77,295	66,350	415,426	468,710	474,594

Thus the exports to this country in July were not one-third as great this year as last, and a little more than one-fifth as great as in 1881. For the seven months these exports have been 63 per cent. less than last year and 75 per cent. less than in 1881.

The exports to other countries were a little larger this year than in the other two in July, but not enough larger to balance the decrease in exports to this country, but for the seven months the total exports were largest this year, the exports to countries other than the United States having been 436,792 tons, against 328,663 tons last year and 230,771 in 1881. In July more rails were exported to Canada than to any other country specified, and next to that came Australia; but for the seven months, while 147,219 tons (31 per cent.) of the total exports of 474,594 tons went to unspecified "other countries" (including Mexico), 91,471 tons (19⅜ per cent.) went to India, 72,765 (15⅓ per cent.) to Australia, 40,784 (8⅗ per cent.) to Canada, and 40,394 tons (8½ per cent.) to Italy—all more than to the United States, though they took more than twice as much as any other country last year and several previous years.

The exports to this country in July are about equal to the average monthly exports since October last.

Met on the Train.

On a train coming up from Philadelphia the other day, a New Yorker shared his seat with a stranger who proved to be an ex-county treasurer from Ohio. After some little conversation the citizen inquired :

"So you were a county treasurer, eh?"

"I was."

"What was the amount of your defalcation?"

"My books balanced to a cent, sir!" was the indignant reply.

"Ah!" growled the New Yorker in a disappointed voice, and it must have been easy to see from his looks that he was deeply chagrined. The stranger doubtless felt sorry for him, and after a few minutes of painful silence remarked:

"But I subsequently acted as postmaster and cheated the government out of $7,000."

"Oh! you did!" chuckled the New Yorker, and a feeling of quiet satisfaction at once rested upon his face, and friendly relations were again established.—*Wall Street News.*

Sandwiches.

A passenger on a western railroad was shot in the abdomen by a train robber, and the bullet was found lodged in a sandwich he had eaten at a railroad restaurant only ten minutes before. The leaden missile was flattened out as thin as a silver dime, and the man was expected to recover. If it had not been for the sandwich, the ball would have gone clean through him.—*Norristown Herald.*

Bureaus of information are of great assistance in a railroad depot. They relieve the ticket sellers from answering such questions as "Is that clock right?" "Do the trains always start on time?" "Do you get many trade dollars?" "How long do you think it will be before it will rain?" etc, while a hundred people are in line behind waiting for a chance to buy a ticket for a train which starts in one minute and three-quarters.—*Philadelphia News.*

A New England exchange speaks of a railroad accident in its neighborhood having been prevented only "by Divine Providence." To which another retorts that on some of the roads in its section the passengers would much prefer that kind of management to the present sort, which does *not* prevent accidents.

An Inclined Railroad.

A short inclined railroad has recently been built near High Bridge in New York, by which pleasure-seekers are carried from a landing on the banks of the Harlem River to the top of the adjoining bluff. The road is built up the side of the hill at an inclination of 43 ft. in 100, and has a length along the slope of 240 ft. The rails are of maple 3 in. wide by 2½ in. thick, and are spiked to string pieces running up the track of yellow pine 8 in. square. These are supported on framework where the ground hollows, and on the surface in other places. The gauge of the road is about 4 ft. 5½ in. The frame of the car is triangular; the hypothenuse being parallel to the track, thus bringing the floor horizontal. They are 6 ft. wide and 7 ft. long, with doors in the centre of each side; they run on four wheels, 20 in in diameter. The power is furnished by a 50 horse-power engine, with two cylinders 10 by 12 in. On the crank shaft are two pinions 12 in. in diameter and 8 in. face, engaging with two spur wheels 7 ft. in diameter, keyed on the same shaft. This shaft is of hammered iron 6½ in. in diameter, and carries, besides the spur wheels, two drums 6 ft. in diameter and 3 ft. across. The axis of these drums is perpendicular to the line of the track. Around each one is wound two coils of ⅜-in. wire rope, the winding being in contrary directions, so that one car will be raised while the other is being lowered. The second rope is put on to guard against accident. The engines have a link motion and automatic brakes, with strap brakes on the drums, which can be run independently. Either of the gears is of sufficient strength to hold the load should the other break.

From Paris to Constantinople.

An "Oriental express train" has been established, which runs through from Paris to Constantinople. The first one left Paris June 5, and was to reach Constantinople in 78 hours, by way of Munich and Vienna. It took 34 passengers from Paris, 11 of whom were ticketed to Constantinople—most of the latter Englishmen, who paid 510 francs, or just about $100, for their tickets. The train consisted of two sleeping cars, one restaurant car and three baggage cars—a monstrous allowance of baggage room for 34 passengers. The whole train is an enterprise of the International Sleeping Car Co., whose cars, we believe, are of a pattern introduced by a Colonel Mann, an American.

Lost Wheels.

Night before last, as the through freight train from Lynchburg was thundering down the grade between Burkeville and Nottoway Courthouse, the rear wheels of a box car which was about the middle of the train became detached from their gear, and when the train pulled up at Nottoway Courthouse it was discovered that the wheels had been left several miles behind. Notwithstanding the fact that the car

rom which the wheels had been broken was midway in the train, and that the car had literally been dragged along at considerable speed, no accident occurred. When Nottoway Courthouse was reached, a part of the train was left at that point. The question which now agitates the minds of the able railroad men is, how did the wheels, after being broken from the car, manage to get from beneath without causing an accident? A prize is offered for a speedy solution of this great problem.—*Petersburg (Va.) Mail, Aug.* 11.

An accident of this kind is unusual, but not unprecedented. Several cases are on record where an axle and the wheels attached have been lost and the train has run several miles without accident. It must, however, require a peculiar combination of circumstances to throw the axle out from under the car without derailing it.

New Way of Driving Shafting.

The New York, West Shore & Buffalo Co. is driving the power in its new shops in a novel and effective manner. Instead of belting from the engine to the line shaft in the usual manner, each shaft is driven by an independent engine, coupled directly to it. To effect this, the arched doorway in the central brick partition is strengthened by piers, and a second arched opening left over it similar to a transom. The floor of this opening forms the foundation for a Westinghouse engine, which is set with its centres exactly in line with the shafting to which it is coupled on each side. No regular engineer is employed, but the engine is considered a part of the shafting and is in charge of the wiper. The Westinghouse Machine Co. has so far fitted up the shops at New Durham, N. J., with a 12×12, at Kingston and Syracuse, N. Y., each with a 9×9, and at Schenectady with a 7×7 in. cylinder engine.

A Narrow Escape.

The Railroad Commissioners yesterday afternoon began an investigation into the circumstances connected with the narrow escape from a serious collision at Beverly Wednesday morning. President Jackson of the Eastern road says it was indeed a narrow escape, and he has written a letter to John Savage, the engineer of the Pullman express, and to I. H. Williams, the switchman, thanking them for their prompt action in averting an accident, and stating that, believing they deserve something more than thanks, he shall report the matter to the directors at their next meeting for their action. It appears that the Pullman train was just about starting out, the signals being all right, when Engineer Savage saw the Rockport train approaching. He reversed his engine and backed the train, just getting off of the cross track, at the same time shouting to Williams to throw the switch. Fortunately, the latter acted promptly, and the Rockport train dashed by the Pullman, within a foot of the engine, in safety. Had Savage started ahead, or even remained stationary, instead of backing, a terrible collision would have been inevitable.—*Boston Herald, Aug.* 11.

Self-Igniting Signals.

The Louisville & Nashville Co. has just adopted the Jackson improved self-igniting signals on its whole system. Major Geddes and Mr. Frank Fonda think very highly of these fuses, and say they will obviate what few accidents would otherwise occur on the road by a train running into another which had been delayed through accident. Heretofore, the danger in these cases has always resulted from the necessity that the delayed train had to recall the flagmen with his red lantern at night before starting off, and where a collision occurs it generally takes place before the forward train was well under way. The rule of the road now requires the flagman to stick the spear point of the Roman-candle or fuse in a cross-tie in the track, and then strike the cap on the head of it. For 15 minutes after the brakeman leaves the fuse it throws out a stream of red fire about 10 ft. high, and his train is thus enabled to get under full headway before the train following can run into it. The conductor of a train upon seeing the red fire issuing from the fuse stops until the matter is investigated and the candle burns out. This, of course, allows the necessary time for the forward train to get under full headway. The usual plan of placing torpedoes on the track just in the rear of a delayed train is still to be kept up, the torpedoes being placed between the burning fuse and the expected train.

All passenger and freight trains running out of the Louisville depot last night were provided with these fuses, which, are kept in tin cases to be hung up inside the baggage cars —*Nashville (Tenn.) American, Aug.* 18.

A Terrible Accident.

On the morning of the 17th a passenger train on the Elizabeth, Lexington & Big Sandy road ran into a Kentucky Central freight train at the crossing of the two roads at Winchester Crossing, Ky. The engine of the passenger train struck a freight car in which were loaded 400 kegs of giant powder, and a terrific explosion followed, utterly wrecking and destroying the engine, four freight cars and the station building. Both conductors were killed and five others, all trainmen or yardmen, were hurt.

A dispatch from Lexington, Ky., thus describes the accident: "The depot and dining-saloon buildings at Winchester Crossing are so situated as to hide the trains from each other. The accommodation train was broken in two for the purpose of making a running switch, leaving the passenger cars standing some distance back, and thus saving the lives of the passengers. Just before the engine reached the crossing, the freight train began to back. Engineer Ben Schuler saw the inevitable collision, but did not know the fearful freight of the rear car. He reversed his engine, and with his fireman jumped and ran. The engine went on and crashed into the powder-car and broke some of the kegs. Sparks ignited the powder, and an explosion followed of such a terrific nature as to stupefy all who were near and frighten the community for miles away. Conductor Charles McMichael, of the Chesapeake & Ohio train, was on the freight car nearest the engine turning the brake. He was blown a distance of 100 yards against a fence. His clothing was torn from his body, his hair blown from his head, and his eyes burned out. He was able to moan, 'Oh, my poor wife and children.' He died at noon. Conductor Randolph Martin, of the Kentucky Central train, was instantly killed. These two comprise the death list.

"The force of the explosion was absolutely horrifying. The engine was broken to atoms, the car in splinters, and only four of the 400 kegs remained unbroken. A car of wheat was blown across the platform, and the ends of the depot and of the dining-saloon were blown to splinters. A passenger of the C. & O train, who served during the war, said he thought he had heard explosions at Vicksburg, but none of them equaled this one. He got out of the car and started forward, but was compelled to seek shelter from the falling debris. He asserts that he saw some pieces fall that been up long enough to reach the height of one mile. The effect on Schuler and his fireman was peculiar. They were missing, and it was thought they had been blown away. Instead, they were so shocked by fear that the entire train of passengers was lost that they became almost completely demented, and kept going until they reached the round-house at Lexington, 18 miles away. A sad sight was the coming of Conductor McMichael's wife, who arrived on a special train from Lexington. She found him alive, but sightless and speechless. The only comfort any one could give her was to tell her how in his last words he spoke her name and those of his children."

The Plainville Collision.

The Connecticut Railroad Commissioners have filed their report on the collision at Plainville, July 9, in which two men were killed and another badly injured. The facts as found by the Board were as follows: "At 5:14 p. m. an order was sent by E. H. Phelps, the Train Dispatcher, as to the meeting of a regular east-bound passenger train and a west-bound gravel train. The order was addressed to the conductor and engineer of the gravel train at New Britain, and receipted for by them. It was also sent to Plainville and receipted for by the telegraph operator at that place. It directed that the gravel train should have till 5:30 to reach the turnout at Plainville. The telegraph operator who receipted for the order forgot it and let the passenger train proceed east at 5:26, and in two minutes it met the gravel train. The commissioners say that no blame attaches to the trainmen of either train, and that the immediate cause of the collision was Welch's allowing the passenger train to pass Plainville without communicating to its conductor and engineer the order giving the gravel train to 5:30 to make that point. The report continues:

"While the collision was directly attributable to the forgetfulness of the operator at Plainville, we are of opinion that there was a grave error of judgment on the part of the Dispatcher at Hartford. The order, so far as the passenger train was concerned, could not be complete, under the rules of the company, till the acknowledgment of its receipt had been given by the conductor and engineer of that train, and while the necessities of business may justify a dispatcher in sometimes moving a train on the time of another before notice has been received by that other, relying upon the operator at an intervening station to give the notice, we do not think that a gravel train should be sent out on the time and in the face of a passenger train, until the fullest possible protection has been extended to the latter train, by obtaining, not only the acknowledgment of the order from the operator, but also from both conductor and engineer of the passenger train, nor even then, unless in case of more pressing urgency than seemed to us to exist in this instance. It was the more inexcusable on this occasion as the passenger train did not leave Bristol till three minutes after the order was sent out, and yet no attempt was made to reach its conductor and engineer before they left that station. We also think it worthy of careful consideration whether it is safe practice to employ, as at Plainville, young men of 17 or 18 years of age, in such responsible situations, where the lives of so many may depend on the most careful attention, correct understanding and implicit obedience to orders, of a single individual. We doubt whether the quickness of perception and execution which youths of that age possess are as important to the safe performance of their duties as are the steadiness of character and soundness of judgment which ordinarily attend on more mature years."

A Cheap Switching Engine.

The Chattanooga (Tenn.) *Tradesman* thus describes a small, inexpensive locomotive, which was built on short notice at the Wason Car Works of that city, for the government works at Muscle Shoals, Major W. R. King, U. S. Engineers, in charge:

"The frame is similar to an ordinary car truck, but somewhat longer and lower, the jaws being shortened and the springs reduced to 2 in. of rubber. The wheels, axles, jaws, boxes, etc., are those in common use, and in fact most of these parts had been in use on ordinary trucks. The power is applied to one of the axles through a 30-in. gear wheel, which engages a similar wheel attached to the small hoisting engine which furnishes the power.

"Almost any compact form of engine could have been used, but this one is a double cylinder yoke engine, with cylinders 6 in. diameter and 8 in. stroke. It has a reversible link motion, and is so geared that the engine makes nearly 5 revolutions to one of the driving wheels, an arrangement designed to give plenty of power, but a moderate speed.

"The boiler is of the plain, upright tubular pattern, 32 in. in diameter and 60 in. high, and is so placed that nearly its entire weight, as well as that of the engine and a water tank, comes over the driving wheels.

"The entire cost of the truck and fitting up the engine and boiler, which were already on hand, was $365.

"The engine can easily be managed by one man, and hauls a car weighing 20,000 lbs. up a grade of 200 ft. to the mile, the arrangement being such that the loaded cars all come down grade.

"Maj. King, the inventor, or at least the planner, of this locomotive, is an inventor of considerable eminence and an engineer of the very highest standing. He designed the locomotive and by its use saved the government several thousand dollars."

Caring for Trainmen.

Col. I. S. Buckelew, Superintendent of the Amboy Division, Pennsylvania Railroad, has long cherished the idea of providing suitable quarters and entertainment for trainmen when off duty at Camden. He has at length fitted up compartments, comfortable and roomy, in the building adjoining the train-shed on the south side of the passenger depot, and proposes to keep the reading-room well stocked with current literature, books, etc. Here the men can spend their leisure time with benefit to themselves, and away from the others who are engaged in making up their reports. Innocent games will be provided. The lavatory will be equipped with all the essentials for keeping up their neat personal appearance.

The "Engineer's" Gullibility.

The London *Engineer* publishes the following without other comment, and apparently gives credence to the statements of "a correspondent." Imagine the limited train on the Pennsylvania Railroad stopping half an hour while all hands "went in swimming:"

"A correspondent writing from New York, speaking of his traveling there a few days ago, says: Journey home from Chicago a perfect pandemonium; thermometer 100 deg.; soft coal engines, clouds of smoke and dust indescribable; ears and eyes full of cinders. At one point in Ohio we made engineer stop half an hour while we bathed in a river; we all looked like niggers."

Shoeless Passengers.

The Ithaca (N. Y.) *Journal* relates a curious accident that occurred on a train crossing the International Bridge the other morning, by which several Ithacans were traveling. While going at a fast rate of speed a spring broke and the collapse tore up the floor of the car in the compartment where the porter was blacking the boots, and about 15 pairs of boots and shoes fell through the hole into the river.

A Seasoned Crew.

George Robinson, of the midnight passenger, has the boss gang. He has been through the mill himself while he was an engineer, and is not by any means as perfect a man as he was years ago when he used to handle the throttle valve. His brakeman had some difficulty with a car at Yates City a few weeks ago, and one arm is still on the retired list. His baggageman buys regulation pants, but has only one leg to put into them. As George himself says, "taken all together, it's a veteran make up." And yet it is one of the best natured, good humored gangs on the C., B. & Q. Everybody on the road likes the good natured conductor, who is always pleasant to his friends, and who can bounce a bummer with such suavity and grace that he actually feels honored by George's invitation, asking him to accept a tie ticket.—*Fulton (Ill.) Republican.*

A Forest Fire on the Northern Pacific.

Through Idaho and down the mighty Columbia is a journey worth a pilgrimage around the world, writes a correspondent of the Chicago *Inter-Ocean*. We have seen its wonders, but ran a gauntlet of fire at its portal, where, in an hour, nature's labor of a hundred years was being swallowed up in smoke and roaring flames. All day yesterday the air was blue with smoke. The mountains looked dim or drew their jagged peaks clear out of sight. For a day or two it had been hazy toward the west, and we had heard stories of the forest fires. Yesterday, however, the smoke grew thicker and rolled up on the westerly side in dense clouds. Last night we had a glimpse of the inferno. We had left Montana to cross Idaho, when, at about nine o'clock, the train came to a stop without a moment's warning in the midst of a wilderness. We hastened to the platform and looked forward. There was spread out a panorama such as seldom greets the eye of man. The forest was one mass of seething flame. The engine panted a time or two, and then, gathering courage, crept nearer. A few hundred yards, and it again came to a standstill. It was impossible to pass. The heat made the paint on the cars crack. The glass of the windows grew feverish under the heated breath from the fire. There was, amid all the glare, the roar of an approaching tornado, crackling and popping like a giant's whip. This was accompanied by a hissing like the sound of frying salt, as the green foliage of the living pines was consumed with a white flash. This roaring and crackling and snapping, terrible as it was, only set off the grand accompaniment of falling trees. Every five seconds a giant, with the strength of a score of centuries, measured his 200 ft. across the fiery bed to which he had been felled. He stood till seared to the core and his hoary top was crowned with fire. As he yielded, the mountains rolled back the booming of cannon from one height to the other. We held our breath and gazed at the sky, overcast with leaden smoke, tinted here and there with a rosy hue. The crashing of the falling giants is still for a moment. The fire breaks through the gloom of the forest in a new place. The flames go racing like demons up tall trees, and quiver in their top like ruddy lanterns for a moment. The foliage melts away with the first hot breath, and then the crashing and booming goes on again. For the moment the rush and crackle is drowned, and the very crags of the mountain side seem to be rolling upon us from their seats far above our heads. We ask the conductor when we can go on. He says two hours. Long piles of wood stored all about the track have caught fire, and scores of Chinamen with long poles in their hands are hurrying up from the nearest station to save the track from ruin. Two hours pass, and still the infernal pandemonium of hissing, roaring, crackling, booming, crashing devastation goes on. The conductor and engineer are afraid to go on. They fear the heat will fire our train. Should it yield to the first spark it would melt away like tinder in a furnace. For over four hours we watched the scourge till it drew away from us and let us go on.

Train Brakes for Freight Cars.

The Union Pacific, the Central Pacific, the Northern Pacific and the Atchison, Topeka & Santa Fe companies have contracted for the Westinghouse automatic freight brake for their entire freight equipment. The cost of this brake as furnished by the Westinghouse Air Brake Co. is $50 per freight car, the engine fixtures costing $300 per engine and $60 per tender. The Westinghouse Co., however, offers to give a discount of 20 per cent. on the car fixtures to companies contracting for their entire equipment before June 30, 1884, and a discount of 10 per cent. on contracts made from that date until the close of the year.

Reducing the Cost of Rails.

A new process is in course of introduction at the Edgar Thomson Steel Works which will materially lessen the cost of producing steels rails. Last January the method of blowing the metal as it came from the furnace, instead of putting into pigs and remelting, was put into practice, and to this is to be added the soaking pits. In these the ingots, as soon as they are cool enough to leave the mold, are placed, and by the heat held with them they are brought to a uniform degree of heat, and rails made with one heating of the metal. This method has been successfully used in England, and will be used here in the course of six weeks or two months. The saving will be from $1.50 to $1.75 per per ton. Some of the Western papers place the figure at $5, but they are away out in their reckoning.—*Pittsburgh Commercial Gazette.*

Rules for News Agents.

Mr. James Charlton, General Passenger Agent of the Chicago & Alton road, has issued the following rules for the government of news agents on the trains of that road, and conductors are directed to see that these rules are strictly carried out:

"1. Unless under special instructions to the contrary, which will not be given except in cases of emergency, only one news agent must be allowed on each train, who must appear on duty in clean, neat uniform, and must be polite to passengers and all others with whom he may come in contact, and must be subject to the conductor of the train on which he works.

"2. News agents must not be permitted to importune passengers, nor force sales, nor annoy passengers in any way. They must announce in a low and respectful tone at intervals, in each car, the articles which they have for sale.

"3. They shall not carry with them more than two trunks, which must be put on the train not less than 10 minutes before its departure, and in such place as may be designated by the conductor; and they must not be removed from their assigned position on the train, at the end of its run, until after all passengers have alighted from the cars and passed off the platform.

"4. Conductors must not permit a news agent to ride on their trains, or solicit business, unless he is provided with a card of identification signed by Messrs Barkalow Brothers.

"5. News agents must not be permitted to overcharge for papers, books, or other goods. No excess over ordinary retail prices must be allowed. The price of daily papers shall not be more than 5 cents each, and the price of weekly papers shall not be more than 10 cents each. News agents must not be permitted to solicit business for hotels or eating houses, nor to distribute any form of advertising matter on trains, except that relating to their own business. News agents must not be permitted to sell or give away on trains, any nuts in shell.

"6. News agents must be subject to the rules and regula-

tions of this road, and must not sell or give away any books, papers, periodicals, pamphlets, or printed matter of any kind, of an immoral, improper, vicious, obscene, or vulgar character, nor offer for sale prize packages, nor be permitted to engage in gambling devices of any character intended to swindle passengers."

General Railroad News

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

Albany & Susquehanna, annual meeting at the office in Albany, N. Y., Sept. 4.

Northern Pacific, annual meeting at the office in New York, Sept. 20. Transfer books close Aug. 25.

Richmond & Danville, special general meeting, at the office in Richmond, Va., Sept. 12, at noon.

Dividends.

Dividends have been declared as follows:

Chicago & Alton, 4 per cent., semi-annual, payable Sept. 1. Transfer books closed Aug. 15.

Delaware & Hudson Canal Co., 1¾ per cent., quarterly, payable Sept. 10. Transfer books close Aug. 25.

Railroad and Technical Conventions.

The *Road-Masters' Association of America* will hold its first regular meeting in St. Paul, Minn., Sept. 12.

The *Master Car-Painters' Association* will hold its annual convention in Baltimore, Sept. 19.

The *New England Road-Masters' Association* will hold its first annual meeting in Boston, Sept. 20.

The *American Street Railway Association* will hold its next meeting in Chicago, Oct. 9.

The *American Institute of Mining Engineers* will hold its autumn meeting in Troy, N. Y., during the second week in October.

The *General Time Convention* will hold its fall meeting at the Grand Pacific Hotel in Chicago, Oct. 11.

The *Southern Time Convention* will hold its fall meeting at No. 46 Bond street, New York, Oct. 17.

The *American Association of Railroad Superintendents* will hold its fall meeting in Washington, Oct. 23.

Foreclosure Sales.

The *Syracuse, Chenango & New York* road was sold under foreclosure of mortgage in Syracuse, N. Y., Aug. 22, and bought for $100,000, for account of the New York, West Shore and Buffalo Co., which holds all but $10,000 of the $261,000 bonds outstanding. The road extends from Syracuse, N. Y., to Earlville, 44 miles; it has been twice before sold under foreclosure, and has been the cause of litigation extending over several years. The West Shore Co. acquired its interest by purchase from the Boston, Hoosac Tunnel & Western.

Joint Executive Committee Meeting.

A meeting of the Trunk Lines Committee, Passenger Department is to be held this week, beginning on Thursday, at the office of Assistant Commissioner Pierson in New York. The principal subjects to be considered are the immigrant business and the position of the Delaware, Lackawanna & Western in relation to the passenger business generally.

Master Car Painters' Association.

The Fourteenth Annual Convention of this Association will be held at Baltimore, Md., opening on Wednesday, Sept. 19, 1883, at 10 o'clock a. m.

The headquarters of the Association will be at the Carrollton Hotel, where the Convention will also be held. The location is central and the house first-class. Special arrangements have been made for the meeting, and a reduction of rates to $2 per day secured to delegates.

Those desiring to engage rooms will apply to the hotel clerk five days previous to the meeting.

Foremen Car and Locomotive Painters throughout the United States and Canadas are cordially invited to attend the convention.

Members of committees and delegates are requested to take notice of the subjects named below for consideration, and come prepared to give their practical views on the several questions, which, being few in number, will give opportunity for a thorough discussion on each.

Those unable to be present who have reports or papers to lay before the meeting, will please forward them to the Secretary before Sept. 15.

The annexed subjects will come before the Association during the session, when, after being introduced by the members whose names are attached, they will be open for general discussion:

1. *Will the Loss of the Earnings of a Passenger Car while in the shop for Re-painting be compensated for by the value of Repairs done to it?*—Affirmative, C. F. HARRAL, Kansas City, St. Joseph & Council Bluffs, St. Joseph, Mo. Negative, F. S. BALL, Pennsylvania Railroad, Altoona, Pa.

2.—*What are the Advantages, if any, of Wood over Muslin for Car Head-linings?*—E. L. FETTING, New York & New England, Norwood, Mass.

3.—*The Benefits of Association as applied to Master Car Painters.*—R. MCKEON, New York, Pennsylvania & Ohio, Kent, O.

4.—*The Value of the Repeating Process of Varnishing in the Light of another Year's Experience.*—JOS. MURPHY, Louisville & Nashville, Louisville, Ky.

5.—*Can a Passenger Car be Painted in Less Time than 30 Days to insure Durability, and if so, by what Method?*—D. D. ROBERTSON, Michigan Central, Detroit, Mich.

6.—*Is there any Difference in the Durability of a Passenger Car Painted in the Summer Months and one Painted in the Winter?*—J. C. STOUT, Union Pacific, Wyandotte, Kan.

7.—*A Few of the Causes of Unsatisfactory Results in the Paint Shop.*—A. J. BISHOP, Cleveland, Columbus, Cincinnati & Indianapolis, Cleveland, O.

8.—*Testing of Varnishes; Suggestions and Questions.*—GEO. GLENNY, Grand Trunk, Brantford, Ont.

9.—*What is the Best Material for Painting on Tin, Galvanized Iron or Steel, to insure Durability?*—NELSON NEHER, Wabash, St. Louis & Pacific, Springfield, Ill.

The address of the Secretary, Mr. Robert McKeon, is Kent, Ohio.

ELECTIONS AND APPOINTMENTS.

Amalgamated Association of Iron & Steel Workers.—At the annual convention last week, the following officers were chosen: President, William Weihe, of Pittsburgh; Secretary, William Martin; Treasurer, James Penny; trustees, Samuel Waitnight, Newton Lynch, Wheeling; John P. Davis, Sharon, Pa. Vice-Presidents—First District, First Division, P. F. Keeney, Pittsburgh; Second Division, John J. Morgan, Allegheny; Second District, C. D. Thompson, Wheeling. Sixth District, E. H. Davis, Cleveland. Eighth District, Andrew Lee, Philadelphia. The Vice-Presidents for the Third, Fourth, Fifth and Seventh districts were not chosen, and will be appointed by the President.

Atchison, Topeka & Santa Fe.—Mr. George Hargreaves has been appointed Purchasing Agent in place of F. M. Smith, resigned, his appointment to take effect Sept. 1, 1883. No material of any kind whatsoever will be purchased on account of the company or leased lines excepting by him. Mr. Hargreaves is charged with full control of handling and distributing of all material, new and old, and his instructions with regard to the same are to be observed.

Columbus & Eastern.—This company has elected the following officers: President, J. E. Redfield, Essex, Conn.; Vice-President, C. D. Firestone; Secretary, F. C. Donaldson; Treasurer, J. H. Albery.

Dakota & Great Southern.—The officers of this new company are: President, George H. Ellsbury; Vice-President, J. E. Wisner; General Manager, Isaac Britton; Secretary and Treasurer, R. P. Sherman; Land Agent, A. O. Squier. Office in Tower City, Dakato.

Fort Wayne, Peoria & Galesburg.—Mr. C. A. Wilson is Engineer in charge of the preliminary surveys of this road, with headquarters in Fort Wayne, Ind. He was recently on the New York, Chicago & St. Louis road.

Highland Junction.—The board has elected Charles S. Hill President.

Illinois Central.—At a meeting of the board in New York, last week, the following officers were chosen: President, James C. Clarke, First Vice-President, W. K. Ackerman; Second Vice President, Stuyvesant Fish; Secretary, L. A. Catlin; Treasurer, L. V. F. Randolph. Mr. Clarke succeeds Mr. Ackerman as President, and Mr. Ackerman, at the request of the board, continues with the company as Vice-President. The new President, Mr. Clarke, has been with the company as General Manager or Vice-President since 1874, having previously served as General Superintendent and for a time a Vice-President of the Erie, to which road he went from the Baltimore & Ohio.

International Association of Traveling Passenger Agents.—At the Annual Convention last week the following officers were chosen: President, James D. Welsh, Union Pacific; Vice-President, Charles A. Brown, Chicago, Milwaukee & St. Paul; Secretary and Treasurer, W. B. Finney, Cincinnati, Washington & Baltimore.

Joggins.—This company was organized last week at Amherst, N. B., with the following officers: President, D. B. Warner; Vice-President, Gilbert Seaman; Secretary and Treasurer, W. C. Milner.

Minneapolis, Sault Ste. Marie & Atlantic.—This company has been organized at Minneapolis, Minn., with the following directors: W. W. Eastman, P. G. Harrison, Anthony Kelly, C. M. Loring, Thomas Lowry, C. F. Martin, Clinton Morrison, G. R. Newell, C. A. Pillsbury, A. C. Rand, J. K. Sidle, W. D. Washburn, all of Minneapolis.

Missouri Pacific.—Mr. J. B. Vandyne has been appointed Superintendent of the Missouri, Kansas & Texas Division, with headquarters at Parsons, Kan.

New York, Ontario & Western.—The following executive orders from President E. F. Winslow are dated New York, Aug. 20:

"Mr. Charles Paine has been appointed General Manager of this company, to take effect this date.

"Mr. William P. Robinson has been appointed Traffic Manager of this company, to take effect this date.

"Mr. Henry Monett has been appointed General Passenger Agent of this company, to take effect this date.

"Mr. R. H. Soule has been appointed Superintendent of Motive Power of this company, to take effect this date."

The management of the road is thus made identical with that of the New York, West Shore & Buffalo, these officers now holding the same positions on both roads.

St. Johnsbury & Lake Champlain.—At the annual meeting in St. Johnsbury, Aug. 15, the following directors were chosen: Franklin Fairbanks, Horace Fairbanks, W. B. Fairbanks, St. Johnsbury, Vt.; Bradley Barlow, St. Albans, Vt.; A. B. Jewett, Swanton, Vt.; Thomas Coggeshall, Newport, R. I.; A. B. Harris, Springfield, Mass.; A. D. Hyde, Boston.

Southeastern, of Canada.—Mr. F. A. Mackinnon has been appointed General Manager. He has held the office of Assistant General Manager for some time, President Barlow having acted as General Manager.

PERSONAL.

—Mr. F. M. Smith has resigned his position as Purchasing Agent of the Atchison, Topeka & Santa Fe Railroad, to take effect Sept. 1 next.

—Mr. S. S. Montague, long Chief Engineer of the Central Pacific Railroad, has been in failing health for several months, and is now very dangerously sick, his physicians having given up all hope of his recovery.

—J. M. Haven, late Treasurer of the Rutland Railroad Co., has been arrested on a charge of issuing certificates of stock in excess of the legal number. This proceeding is in addition to the civil suits heretofore begun against him.

—Mr. E. T. B. Glenn has resigned his office as Accountant of the Southern Maryland road, and accepted the position of Secretary to the Superintendent of the Cape Fear Yadkin Valley road, with office at Fayetteville, North Carolina.

—Mr. F. C. Hand has resigned his position as Superintendent of the San Pete Valley road in Utah, and will build the new Muskingum River road. His present address is at McConnellsville, Ohio. Mr. Hand has had much experience, both in the construction and operation of railroads.

—A body was found floating in New York harbor on Wednesday of this week, which is supposed to be that of L. F. Booth, recently agent at Castle Garden for the Trunk Lines' immigrant business. Friends of Mr. Booth differed in opinion, but his wife identified the corpse as his, which would seem to settle the question. Whether his drowning resulted from accident, suicide or foul play will probably remain unknown.

—Mr. W. K. Ackerman has finally retired from the presidency of the Illinois Central Co., but has consented to remain with the company as First Vice-President. The board, at its last meeting, adopted the following resolution unanimously:

"*Resolved*, That this board, having assented to the suggestions contained in the letter of President Ackerman to the directors, dated July 18, desires to place on record its unqualified approbation of the integrity, ability, fidelity, zeal, and success with which he has, throughout his term of office, discharged the responsible duties thereof, and the Secretary is hereby directed to transmit to Mr. Ackerman a copy of this resolution."

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings for various periods are reported as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Seven months ending July 31:				
Ala. Gt. Southern	$547,604	$423,586	I. $124,018	29.2
Central, of Ga	1,594,300	1,458,449	I. 135,851	9.3
Houston, E. & W. Tex.	169,611	143,671	I. 25,940	18.1
Kan. City, Ft. S. & Gulf.	1,013,426	906,130	I. 107,296	11.8
Nash., Chatta. & St. L.	1,297,457	1,167,8 9	I. 129,638	11.1
Net earnings	577,459	495,423	I. 82,036	16.6
Norfolk & Western	1,411,056	1,216,494	I. 194,562	16.0
St. L. & Cairo	2 8,160	204,160	I. 4 000	1.9
Vicks. & Meridian	262,286	241,538	I. 20,748	8.6
Six months ending June 30:				
Florida Cent. & West.	$198,285	$200,448	D. $2,163	1.1
Minn. & St. Louis	785,749	678,814	I. 106,935	15.8
N. Y., Sus. & Western	465,495	308,658	I. 156,837	50.7
Oregon Imp. Co	1,817,619	1,518,562	I. 299,057	19.7
Month of June:				
Florida Cent. & West.	$26,512	$27,486	D. $974	3.5
Minn. & St. Louis	142,293	128,875	I. 13,418	10.4
N. Y., Sus. & Western	88,152	61,673	I. 26,479	42.9
Ogdensb'g & L. Champ.	58,100	54,800	I. 3,300	6.0
Month of July:				
Ala. Gt. Southern	$73,301	$61,040	I. $12,261	20.1
Central, of Ga	171,800	165,914	I. 5,886	3.5
Net earnings	25,886	23,868	I. 2,018	8.4
Houston, E. & W. Tex.	24,116	21,348	I. 2,768	13.1
Kan. City, Ft. S. & G.	142,501	135,337	I. 7,164	3.1
Nash., Chatta. & St. L.	195,468	186,495	I. 8,973	4.8
Net earnings	96,705	82,885	I. 13,820	16.4
Norfolk & Western	201,622	191,535	I. 10,087	5.3
St. L. & Cairo	29,608	34,140	D. 4,532	13.3
Vicks. & Meridian	29,304	26,633	I. 2,671	10.1
First Week in August:				
Bur., Cedar Rap. & No.	$48,389	$47,013	I. $1,376	2.9
Chi. & West Mich.	29,799	25,955	I. 3,844	14.8
Ind., Bloom. & West.	72,404	59,850	I. 12,554	20.9
Second Week in August:				
Chi. & Eastern Ill.	$34,955	$37,944	D. $2,989	7.8
Chi. & Gd. Trunk	47,357	34,206	I. 13,091	38.5
Chi. & N. W.	471,800	423,500	I. 48,300	11.4
Chi., St. P., M. & O.	98,400	89,300	I. 9,100	10.2
Denver & R. G	130,200	112,500	I. 17,700	15.7
Hann. & St. Jo.	53,400	59,100	D. 5,700	9.6
Louis. & Nash.	268,570	230,495	I. 38,075	16.5
Long Island	97,001	88,211	I. 8,790	9.9
Mo. Pacific lines	1,109,570	1,009,861	I. 99,709	9.9
Mil., Lake S. & West.	21,495	16,560	I. 4,935	29.6
Northern Pacific	220,070	164,210	I. 55,860	34.0
St. L. & San Francisco	79,300	82,200	D. 2,900	3.5
St. P. & Duluth	30,908	23,237	I. 7,671	33.1

Crop Prospects.

The reports from Dakota and Northern Minnesota have been almost uniformly favorable since the June drouth, and where the plant was not killed or irretrievably dwarfed the prospect is reported excellent. The effect of the drouth was to make the wheat thin and small; but the heads are well filled. Harvesting is now general on the Northern Pacific and further north, and for the most part the grain is cut (though not all secured) further south. There has been damage from bad harvest weather in some localities of no great extent, as there always is, but speaking generally the weather has been very favorable for harvesting.

Manitoba is reported to have fine crops of all the kinds raised there—above the average.

In Oregon and Washington the Land Commissioner of the Northern Pacific Railroad reports that the wheat crop is generally good, and promises a surplus of about 6,200,000 bushels for export, which is more than ever before.

The Kansas State Board of Agriculture reports that there were 1,480,000 acres of winter wheat harvested in that state this year, and that the product is 27,128,000 bushels. The spring wheat acreage in Kansas is very small, and a production of 1,500,000 bushels of that grain would be a large one. Last year Kansas produced 31,248,000 bushels of both kinds of wheat from 1,573,000 acres. The average yield was 20 bushels per acre last year and 18⅛ this year.

The same authority reports that there are 4,655,022 acres of corn growing in the state, while last year there were 4,280,430.

The acreage of oats is 694,576 and the yield 29,322,000 bushels, against 472,619 acres and 12,780,800 bushels reported by the National Department of Agriculture for 1882, an increase in acreage which it is hard to credit.

The acreage of rye harvested was 270,380 acres, yielding 4,832,500 bushels, or 17.9 bushels per acre. Last year Kansas produced 4,450,000 bushels from 198,000 acres.

By far the most important crop, the corn, continues in a precarious condition. The weather has been so cool this month that it has made slow progress, and it was before very late. An early frost will destroy hundreds of millions of bushels; a frost as early as the average time even might spoil a hundred millions, but with a late frost the production will probably be considerably larger than in any other year, and may possibly reach 1,900 millions, against 1,755 in 1879—the largest hitherto.

Cotton still suffers from drought, and the damage is said to be irreparable in Texas, where rains have fallen at last.

Grain Movement.

For the week ending Aug. 11 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past eight years:

		—Northwestern shipments.—			
Year.	Northwestern receipts.	Total.	By rail.	P.c. by rail.	Atlantic receipts.
1876	3,926,489	3,764,548	1,614,256	42.8	2,913,160
1877	5,455,322	4,426,953	933,691	21 1	4,589,353
1878	8,147,091	5,328,243	1,497,000	28.1	6,417,891
1879	6,268,777	6,335,513	1,705,237	26.9	7,685,354
1880	7,643,310	6,635,931	2,105,119	31 9	8,194,567
1881	6,695,745	5,848,709	2,059,820	35.6	5,797,821
1882	3,503,366	3,931,156	1,568,722	39.9	5,270,500
1883	5,565,206	4,553,134	1,574,779	34.6	3,881,478

Thus the receipts of the Northwestern markets for the week this year were 2,062,000 bushels more than in the corresponding week of last year, when, however, they were exceptionally small (2,271,000 less than the week before and 1,486,000 less than week after); but were less than many other years since 1877. They were 547,000 bushels more than in the previous week of this year and were the largest since the middle of June, and with two exceptions the largest since March. The increase over the previous week is wholly in wheat, which were larger than in the corresponding weeks of 1882 and 1881, and arrived chiefly at Toledo and St. Louis, which is an indication that they were chiefly from the new crop. The Toledo receipts were marvelous, 1,038,315 bushels, which is twice as much as the week before or any other week of this year, and have been equaled since 1880 only in the last week of July and the fist week of July last year.

The shipments of these markets for the week were 622,000 bushels more than in the corresponding week of last year, but less than in any other year since 1877. They were slightly less than in the previous week of this year, but with that exception are the largest since the middle of June. The rail shipments are the largest since the middle of May, and a little larger than last year. The shipments

down the Mississippi were 200,060 bushels, or 4.4 per cent. of the whole. Shipments to New Orleans are discouraged now by the impossibility of getting vessels there to export grain.

Recent charters there were at the rate of 9⅝d. per bushel to British and continental ports, while for New York the rate is not half as great, and to Liverpool room is offered at 2½d. per bushel. The rate from New Orleans is more than the whole freight from Chicago to Liverpool by way of New York.

Receipts at Atlantic ports for the week this year were 1,398,000 bushels less than in the corresponding week of last year and less than in any other year since 1876. They were, however, slightly (84,000 bushels) more than in the previous week of this year and the largest since May. More than half of the receipts were wheat, and 57 per cent. of this came to Baltimore—another sign that at last the new wheat is coming forward. The wheat receipts, however, were not half as great as last year or in 1880, and less than than in 1881, when the crop was very poor.

The receipts of grain of all kinds at New York for the week were the smallest for three months, and were smaller than those of Baltimore, which were 2½ times that port's average weekly receipts this year, and the largest it has had for just one year. They were exceeded last year only in the first and second weeks of August.

Exports from Atlantic ports for the week ending Aug. 11 have been :

	1880.	1881.	1882.	1883.
Flour, bbls.....	152,322	93,510	150,822	106,766
Grain, bu.....	7,146,712	4,176,602	4,271,716	3,100,121
Flour and grain, bushels.....	7,832,161	4,597,397	4,950,445	3,580,568

Thus the exports of the week this year were 1,370,000 bushels less than in 1882, 1,017,000 less than in 1881, and 4,252,000 less than in 1880, when they were the largest ever known, probably.

Coal.

Coal tonnages reported for the week ending Aug. 11 are as follows:

	1883.	1882.	Inc. or Dec.	P.c.
Anthracite.....	729,940	648,808	I. 81,132	12.5
Semi-bituminous..	113,957	85,184	I. 28,773	33.8
Bituminous, Penna.....	63,490	45,669	I. 17,821	38.7
Coke, Penna.....	55,218	48,602	I. 6,616	13.6

The anthracite trade is reported very dull, with sales slow, even at a considerable reduction from the list prices.

Coke traffic continues large, although the prices continue low. There are still complaints of a scarcity of cars.

The coal tonnage of the Pennsylvania Railroad for the week ending Aug. 11 was :

	Coal.	Coke.	Total.
Mined on line of road.....	126,029	48,107	174,136
Received from other lines.....	45,038	7,111	52,149
Total.....	171,067	55,218	226,285

The total tonnage this year to Aug. 11 was 7,214,158 tons against 6,692,807 tons to the corresponding date last year, an increase this year of 521,331 tons, or 7.8 per cent.

The coal trade of the Hocking Valley Region in Ohio is to be divided between the three railroad lines entering that region. The Columbus, Hocking Valley & Toledo Co. is to have 55 per cent., the Ohio Central 27, and the Baltimore & Ohio 18 per cent. of the business. The Baltimore & Ohio is also to take all the coal bound to Chicago from the Hocking Valley road at Fostoria. Last year about 2,600,000 tons were shipped out of the region.

The Tennessee Coal, Iron & Railroad Co. shipped from its mines, for the seven months ending July 31 last, 70,226 tons of coal and 57,163 tons of coke, 127,389 tons in all.

Cumberland coal shipments for the week ending Aug. 18 were 59,225 tons. The total shipments this year to Aug. 18 were 1,494,909 tons.

Joint Executive Committee Circulars.

A circular issued by Commissioner Fink announces that the Standing Committee of the Joint Executive Committee at a meeting held in New York Aug. 8 acted upon the following matters:

The committee considered the application of the Northern Pacific Railroad, made through John Muir, Superintendent of Traffic, that upon the opening of that road for through traffic, on or about Sept. 8, 1883, the roads east of Chicago accept the same rates and divisions of rates on freight traffic to and from points from Portland, Or., and Lake Pend d'Oreille, inclusive, as are accepted on Pacific Coast traffic *via* the Union Pacific and Central Pacific railroads. A letter from Commissioner Carman was read, stating that the lines of the Northwestern Traffic Association would accept the same divisions between Chicago or Milwaukee and St. Paul on through traffic *via* the Northern Pacific Railroad as are accepted by the Iowa Trunk-Line Association on California business *via* the Union and Central Pacific roads.

It was agreed that until further notice the existing division east of Chicago on Pacific coast business in both directions will be accepted on shipments *via* the Northern Pacific Railroad.

The following action was taken in regard to correction of bills of lading :

"*Whereas*, It appears that some of the lines have issued bills of lading at western points for east-bound shipments of lumber with the words 'actual weight' inserted therein, it is

"*Resolved*, That such practices shall be discontinued, and that the weights inserted on all bills of lading shall be stated as subject to correction."

The following amendment to rules providing for submission of audit sheets was agreed to :

"*Resolved*, That the practice of making two audit sheets for the settlement of the fast freight line accounts shall be discontinued, and that hereafter, commencing with the line meetings to be held in August, all vouchers shall be covered by one audit sheet, which audit sheet shall not embrace any vouchers which have not been approved by the Commissioner, and that fact must be certified to by the Commissioner or his representative on the said audit sheet before settlement thereon can be made with the line managers by any of the roads members of the Joint Executive Committee."

Colorado Pool.

At the meeting in Chicago last week it was resolved to continue the old agreement until definite action can be had on the new one. Mr. J. F. Tucker, the Arbitrator, was present and received the arguments of the various companies in the pool ; he announced that he would give his decision as soon as possible, and was authorized to call the next meeting.

A dispatch from Boston, Aug. 21, says : "A meeting of several representatives of the railroads interested in the Colorado pool was held at the office of the Atchison, Topeka & Santa Fe Railroad here to-day, but little was done because not all the interested persons were present, and another meeting will be held to-morrow. Decisions of several points in reference to the pool have been given to the roads interested by the Arbitrator, Joseph Tucker. First, he decides that coal carried by the Chicago, Burlington & Quincy Railroad from Denver to eastern points should be pooled; second, that switching charges for switching cars from the Pacific Junction to Council Bluffs on freight transferred from the Chicago, Burlington & Quincy Railroad to the Union Pacific Railroad must be paid for by the Union Pacific; third, that the percentages in the Colorado pool between April 1 last and July 1 should not be rearranged; [the Atchison, Topeka & Santa Fe and the Denver & Rio Grande roads asked for an increased percentage on account of the order of the United States Court compelling them to pro rate their business with the Denver & New Orleans Road;] fourth, that the earnings on high explosives, which are carried by the Chicago, Burlington & Quincy and by the Atchison, Topeka & Santa Fe, but not by the Union Pacific, should not be pooled."

At the meeting on the following day the awards noted above were discussed, but no final action was taken.

Transcontinental Cold Storage and Shipping Co.

This company has been organized for the purpose of running a line of refrigerator and other cars for the transportation of perishable freight between San Francisco and Newport News, over the Southern Pacific and its connecting lines and the Chesapeake & Ohio road.

Boston Traffic Notes.

The New York & New England Railroad transfer steamer at Newburg handled the following number of freight cars during the month of July: Eastward, loaded 3,394 and 42 empty cars; West-bound, 1,349 loaded and 1,939 empty; total for month, 6,682, an increase of 400 over June, 500 over May, while compared with July, 1882, the increase amounted to 1,887 cars. The Harlem transfer handled 6,264 cars during the month, a decrease of 130 from the corresponding month of 1882.

Competition for California Passenger Travel.

The conflict between the Union Pacific and the Denver & Rio Grande regarding California passenger business is becoming more serious every day, and it is generally believed an open rate war between the two roads will break out before many days have passed. A few weeks ago the Denver & Rio Grande gave notice that passengers for California over its line would have the privilege of visiting Denver and Leadville free of charge. This, it was learned, was done in retaliation for the Union Pacific running fast trains between Omaha & Ogden and allowing passengers to visit Salt Lake City free of extra charge. Now the Union Pacific hits back by announcing that passengers for California over its line will also be accorded the privilege of going to Denver and Leadville and return free of charge. This action will of course give the Union Pacific again the advantage, and there is now no other way open for the Denver & Rio Grande to get even except to make a large reduction in rates, which of course will compel the other lines to do likewise.—*Chicago Tribune.*

Southern Railway & Steamship Association.

The following circular from General Commissioner Virgil Powers is dated Atlanta, Ga., Aug. 8:

"In order to comply with the requirements of the agreement entered into by all parties at interest, Jan. 17, 1883, it is *absolutely* necessary to have all abstract reports due this office, together with copies of way-bills, made out and forwarded daily, *particularly for cotton shipments*, both from shipping and delivering points.

"You are therefore requested to issue such instructions to your agents, whose duty it is to furnish these abstract reports and copy way-bills, as will insure prompt attention and dispatch.

"In all cases where there are no shipments of either cotton or merchandise, a blank should be forwarded stating: 'No shipments this date.'

"Blanks for abstract reports will be furnished upon application to this office, viz.:

"Form No. 1—To be used for merchandise at point of delivery.

"Form No. 2—To be used for merchandise at billing point, or point of shipment.

"Form No. 3—To be used for cotton at billing point, or point of shipment.

"Form No. 4—To be used for cotton at point of delivery, at destination or to vessel (steam or sail.)

"Any failure on the part of an agent to comply, will be promptly reported."

Buffalo and Western Passenger Fares.

Assistant Commissioner Pierson, on Wednesday of last week, met the general passenger agents interested in the business from Buffalo westward, in accordance with the appointment made at the last meeting of the Passenger Department of the Joint Executive Committee, to settle the chronic troubles over fares from Buffalo westward. It was agreed to advance the fare from Buffalo to Chicago $1 to $11 for second-class and $13 for first-class tickets; to cease paying commissions to outside agents, and to organize a local passenger association, which will aid in enabling the roads to co-operate in maintaining rates. It was also agreed that each road should have but one ticket office in Buffalo, in addition to its depot office.

The British Parcels Post.

This new provision of the British mail service, which is almost identical with the German service, which has been in operation for several years, provides that parcels not exceeding 7 lbs. in weight, not more than 3 ft. 6 in. long and 6 ft. in girth and length combined, may be sent through the mails to any part of Great Britain and Ireland. It must be delivered stamped at the post-office, 2d. being required for a parcel of 1 lb. or less, 6d. for 3 lbs., 9d. for 5 lbs. and 12d. for 7 lbs. The parcels will be delivered as letters are, by separate wagons and messengers in the towns, and by the regular postman in the country.

Chicago-St. Louis Passenger War.

After a contest of about a week, during which passengers between Chicago and St. Louis were carried for $6 instead of the regular rate of $8, the three roads concerned settled the matter by agreeing on Thursday of last week to pool the business and leave George M. Bogue, the Arbitrator of the Southwestern and other associations, to determine what proportion of the business each road should have, the agreement to hold good for six months. It was also agreed to make the fare $8.70, which is a return to the rate prevailing for several years previous to the long war which followed the opening of the Wabash line from Chicago to St. Louis, instead of $8, which has been the rate for not much more than a year. The following joint circular by the three roads was addressed to other railroads :

"The traffic in Chicago in coupons Chicago to St. Louis of through tickets from Eastern points to St. Louis, or to points south of St. Louis on or east of the Mississippi River *via* Chicago and St. Louis, has become so great an evil, and has so seriously affected our revenues, that we are compelled to notify you of the following regulations on which we are positively obliged to insist for our protection :

"When rates to St. Louis or points beyond are made on Chicago, we shall require our full proportions from Chicago, and in no case, even when rates are not made on Chicago, can we accept a less proportion Chicago to St. Louis proper than $8, and in no case can we accept less than full Chicago rates and proportions south of Chicago to all points indicated above. This applies to all classes of passengers, theatrical and others, whether ticketed singly or in parties, on a solid ticket or otherwise, or whether the tickets are limited or unlimited.

"This notice does not include points beyond St. Louis in Missouri, Arkansas, Texas, northwest of these states, nor does it include excursion or tourist tickets to points South, which excursion or tourist tickets, however, must in every case be of strictly ironclad contract."

A Chicago paper says that it is "rumored" that the Arbitrator awarded 55 per cent. of the Chicago-St. Louis travel to the Chicago & Alton, 35 to the Wabash, and 15 to the Illinois Central. It is by no means certain, however, that Mr. Bogue has made his award as yet.

OLD AND NEW ROADS.

Baltimore & Ohio.—The Pittsburgh *Telegraph* of Aug. 15 says : "The Baltimore & Ohio Railroad will begin a series of improvements next week on the Pittsburgh Division. The Superintendent yesterday received plans for new shops and a round-house, to be located at Glenwood station, and a passenger station at McKeesport. The new structures at Glenwood are to be located on 12 acres of ground lying between First street and the river, and east of the tracks leading to the Pittsburgh & Lake Erie transfer.

"The plans show the new shops will be located as follows : Adjoining the transfer will be the paint shop, 96 by 100 ft., and next to it a transfer table, 80 by 166 ft. The car repair shop, 90 by 120 ft., will be built beside it, and then the boiler and blacksmith shops, 60 by 120 ft. Another transfer, 60 by 166 ft., is to follow next, and then the machine shop, 100 by 120 ft. The round house, with 11 stalls, will be at the end of the row, with a turn-table immediately between it and the machine shop. The improvements will almost entirely take up the 12 acres owned by the company, and will be built of brick, and give employment to several hundred men when completed. The present shops used by the company have grown too small, and will be torn down, some of the machinery going into the new structure.

"The grading of the second track between Pittsburgh and Connellsville has been completed, and the railing will be finished by Sept. 15. The double tracking will then be continued on to Cumberland as fast as possible. The company has three double track bridges of one span each still to complete, one each over Jacobus, Sewickly and Turtle creeks. The bridge structures will be of the standard Baltimore & Ohio truss pattern.

"The work on the new buildings will be begun next week."

Bellaire, Zanesville & Cincinnati.—On the extension of this road from Woodsfield, O., westward to Zanesville, track is now laid to Freedom, 8 miles beyond the late terminus, and 30 miles from Woodsfield. The two bridges over Duck Creek have been completed, and tracklaying has been begun between Belle Valley and Hiramsburg. The Perryopolis tunnel is nearly ready for the track and the St. Clair tunnel is more than half finished.

California Southern.—Tracklaying on the extension of this road from Colton, Cal., to San Bernardino has been delayed by trouble over the crossing of the Southern Pacific at Colton.

Canadian Pacific.—A correspondent of the *Canada Lumberman* gives the following account of the country on the line of this road between Winnipeg and Lake Superior, beginning at Winnipeg :

"The first thing noticeable in the appearance of the country is the gradual change from prairie to woodland. The poplar bluffs, as the groves are called, because they are generally on the higher ground, are more numerous and the intervening spaces of prairie have more than is usual of scrub or bushes. Farther on the groves increase in extent and the spaces grow less, the trees also increasing in size with the extent of ground covered. Still, to those who have seen the great forests of Ontario the timber seems insignificant. After a journey of 40 or 50 miles we begin to see the rounded, weather worn heads of occasional Laurentian rocks, as they are geologically called. It is the same formation which extends throughout the northern part of our country from the Gulf of St. Lawrence, from whence comes its name, to this part of Manitoba. The change of timber now becomes more marked. The evergreens begin to occupy the landscape and the grass retains sole possession only in the lowest meadows. The prevailing poplar of the West still claims a place, but the Jack pine, spruce and tamarack are lords of the now more scanty soil. This Jack pine is a species unknown in Ontario ; the trunk resembles the Norway or red pine, except that the bark is darker in color, and has a rough, dead appearance ; there is a much thinner sap wood, which is quite an advantage. The heart wood is heavier and dark in color, like tamarack. The foliage resembles white pine, but the leaves are short and scanty, giving the tree a stunted appearance ; it never grows large, and is very suitable for ties and small timber As we progress on our journey the country assumes the appearances of a nearly unbroken forest. The slender, conical tops of the spruce, growing thickly in the hollow slopes of the rocky hill-sides, make the landscape decidedly picturesque. Here, too, begins the lake region of the country. It is lakes to the right, and lakes to the left, and lakes to the front and rear. They cover about one-fourth of the whole surface, are of all sizes and shapes, but are generally long and narrow. The waters are never muddy like prairie rivers and lakes, but are always translucent, though sometimes brown in color from the peaty swamps from which they come. This is the country that calls out the skill of the railway engineer. There are not 40 rods of straight, level track on the surface anywhere to be seen. Deep, short rock cuts then trestle work over the end or neck of a lake. Next we seem to be clawing along the side of a high cliff, then through a short tunnel, then over a seemingly bottomless muskeg, or peat bog, and so on *ad infinitum*."

Central, of Georgia.—This company's statement for July shows earnings for that month as follows:

	1883.	1882.	Increase.	P. c.
Earnings	$171,800	$165,914	$5,886	3.5
Expenses.....	145,914	142,046	3,868	2.7
Net earnings.....	$25,886	$23,868	$2,018	8.4

The road has reached the beginning of the busy season, and for several months to come both the gross and the net earnings will probably show a large gain over those of the summer months.

Central, of New Jersey.—The income bondholders met in New York, Aug. 21, and ratified the arrangement made by the committee with the company. This arrangement is for a new 6 per cent. debenture bond, to be issued in place of the incomes, for which they are to be exchanged on the basis of 11 debentures for 10 incomes, the extra bond being for back interest. The issue of income bonds was $2,400,000, upon which interest at 7 per cent. annually has

accumulated from the date of issue about five years ago. The new debenture bonds will be convertible into stock after 1885, at the option of the holders. The total issue of the debenture bonds will be $5,000,000, of which $2,640,000 will be exchanged for the income bonds, and the balance used to pay floating debt and for improvements.

Central Pacific.—The bridge over the Yuba River at Marysville, Cal., was burned Aug. 9. It was a wooden bridge with 13 spans of 60 ft. each, and cost nearly $80,000 when it was built, about 14 years ago. A temporary bridge has been put up, and a permanent iron bridge will be erected as soon as possible.

Chicago, Burlington & Quincy.—This company's Nemaha Line in Nebraska is now completed to Beatrice, 33 miles westward from the late terminus at Tecumseh and 92 miles from Nebraska City. Through trains began to run between Nebraska City and Beatrice this week. Work will be begun shortly on an extension of this line from Beatrice westward to a point on the Republican Valley road, and also on a branch from Nemaha City south about 20 miles to Salem on the Atchison & Nebraska Division.

Chicago, Milwaukee & St. Paul.—Work has been begun on an extension of the Hastings & Dakota Division from Aberdeen, Dak., westward, and contracts have been let for grading 50 miles. The terminus of the extension has not yet been decided on.

Columbus & Eastern.—Tracklaying on this road was begun near Columbus, O., last week. About 35 miles of the road are graded.

Dakota & Great Southern.—This company has been organized to build a railroad from Tower City, Dak., southward through Eastern Dakota to Sioux City, Ia., with a branch from Tower City northward to the Manitoba line. Surveys for the line have been begun.

Danville, Olney & Ohio River.—The Receiver of this road was authorized by the Court some time ago to complete the work on the extension of the road southward, borrowing the money needed on receiver's certificates. He has, however, thus far been unable to raise the money, as no market could be found for the certificates.

Denver, Utah & Pacific.—The Farmer's Loan & Trust Co., of New York, as trustee, gives notice that it will sell at auction, Aug 22, $412,000 first-mortgage bonds and $458,000 stock of this road, deposited by the Denver Railroad & Construction Co., as security for its notes, amounting to $182,946, which went to default July 1, 1883. These securities were bought in for account of the outside bondholders.

Detroit, Mackinac & Marquette.—The contract for building the extension of this road from Marquette, Mich., to the iron mines west of that city, has been let to Craigie, Rafferty & Yeomans, of Buffalo, N. Y., who are to begin work within 10 days.

Evansville & Terre Haute.—This company makes the following statement for the nine months of its fiscal year from Sept. 1 to May 31:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Earnings	$547,084	$549,133	D. $2,049	0.4
Expenses	271,764	335,700	D. 43,936	13.1
Net earnings	$255,320	$213,433	I. $41,887	19.6

The gain in net earnings is due entirely to the large reduction in working expenses.

Florida Ship Canal.—At a recent meeting of the board the plan of Chief Engineer Stone for a ship canal across Florida was adopted. The estimated cost is $46,000,000, as follows: Excavations, $36,000,000; harbors and termini, $4,500,000; engineering, right of way and contingencies, $5,500,000. The total length of the canal would be 137½ miles, and the highest elevation in crossing the water-shed 143 ft., but the deep cuttings at the summit will not be of very great length.

Fort Wayne, Peoria & Galesburg.—Preliminary surveys have been begun for the line of this projected road in Indiana.

Grand Trunk.—A dispatch from Montreal, Aug. 20, says: "Assistant General Manager Wainwright, of the Grand Trunk Railroad, yesterday signed the contract for the construction of the Union Jacques Cartier Railway, which runs from Cote St. Louis, a suburb of Montreal, to Lachine. The road itself is, comparatively speaking, very short, but it effectually controls the traffic between Quebec and all points west, by both the North and South Shore. At Cote St. Louis a junction will be made with the North Shore Railroad, which runs from Montreal to Quebec, and which is now owned by the Grand Trunk, and at Lachine with the Grand Trunk main line for Toronto and Chicago."

Illinois Central.—On the Yazoo & Mississippi Valley Branch of this company's Southern Division the track is now laid to Flora, Miss., 22 miles northwest from the main line at Jackson. Work is progressing steadily toward Yazoo City.

Lackawanna, Wabash & Western.—This company has been organized to build a railroad from Akron, O., west by south to Creston, on the Wheeling & Lake Erie road. The capital stock is $400,000; the corporators are John R. Ranney, E. P. Hatfield, Eckstein Case and James D. Cleveland, of Cleveland, O., Charles E. Kimball, Albert E. Jones and Edwin F. Hudson, of New York. The line will be parallel to the New York, Pennsylvania & Ohio track.

Marietta & North Georgia.—Quite an active controversy over this road is in progress. Recently some of the old stockholders, who were dissatisfied with the transfer of the controlling interest in the road to certain Boston capitalists, made an effort to have the convict laborers now on the road withdrawn, and petitioned the Georgia Legislature to that effect. This was resented by others who were interested in the completion of the road, and there has been a flood of petitions and counter-petitions, the weight of numbers apparently being with those who want convicts kept on the road.

Massachusetts Central.—The Boston *Advertiser* says: "About $3,100,000 of the bonds of the Massachusetts Central Railroad Co. are now in possession of the New England Trust Co., under the agreement for reorganization, and the directors are making every effort to secure the remaining $400,000 in order that the new corporation may be organized immediately after the sale of the road. Every known bondholder has executed the agreement, and the outstanding bonds are in the hands of parties who cannot be found. S. N. Aldrich, Thomas H. Perkins and Henry Woods, the committee of directors, are desirous of knowing who and where they are, in order to communicate with them."

Mexican Central.—Chief Engineer Lewis Kingman writes that during the month of July 55.15 miles of track were laid and surfaced on the Chihuahua Division. This brings the end of the track to a point 449.30 miles southward from El Paso.

Minneapolis, Sault Ste. Marie & Atlantic.—This company has been organized to build a railroad from Minneapolis, Minn., east by north to the Sault Ste. Marie, crossing the St. Croix River at Big Rock Creek and the Menominee River near Florence. The line projected is about 450 miles long, some 30 miles in Minnesota, about 230 miles in Wisconsin and 190 miles in the Upper Peninsula of Michigan. The corporators are all Minneapolis millers.

Monson.—Track is all laid on this road, and the work of ballasting and finishing up is in progress. Trains will begin to run early in September. The road extends from Monson Junction, on the Bangor & Piscataquis road, northward to Monson, Me., 6 miles. It reaches some large granite quarries.

Nashville, Chattanooga & St. Louis.—This company makes the following statement for July, the first month of its fiscal year:

	1883.	1882.	Inc. or Dec.	P. c.
Earnings	$195,468	$186 495	I. $8,973	4.8
Expenses	98,762	103,609	D. 4,847	4.7
Net earnings	$96,706	$82,886	I. $13,820	16.7
Interest and taxes	55,074	53,984	I. 1,090	2.0
Surplus	$41,632	$28,902	I. $12,730	44.0

The statement includes all lines worked by the company, 548 miles in all. From the surplus income in July, 1883, the sum of $6,697 was expended for improvements of property, leaving a balance of $34,935 for the month.

New Hampshire Railroad Law.—In a dispatch from Concord, N. H., the correspondent of the Boston *Advertiser* says: "It seems to be generally conceded by those well versed in railroad matters here that the Colby bill will pass in substantially the form it was reported by the Railroad Committee. A few more amendments may be made, but it is thought they will be of an unimportant character. A prominent railway man, who opposes the bill in its present form, on the ground that it will prevent the construction of new lines without the consent of existing roads, though he is in favor of a general railroad law modeled on that of Massachusetts, sums up the situation to-night something as follows: So far the amendments to the bill have been cheating amendments; they have not been such as to give the people of the state any relief against the monopoly to be created by the bill, and it is not intended by its promoters that any really valuable amendments shall be admitted. There are three classes of members whom the engineers of the Colby bill have sought to influence—those who can be purchased outright; those who want trivial and meaningless amendments inserted as an excuse to their constituents for favoring the bill, and those who are honestly desirous of securing valuable amendments in behalf of the public. It is reported that a canvass of the house shows 200 members who will vote in favor of the bill, which is a handsome majority. It is said that the railroad companies interested in the consolidation schemes have spent $100,000, and that they feel confident of success is shown by their canvass as above stated. Could the bill be so amended as to permit the construction of competing lines without the restrictions now thrown in their way, the bill would not be specially objectionable, but there is little hope that any such amendment could be secured. The companies interested dare not trust each other to that extent until the consolidation has been fixed and all brought in, because, were such an amendment accepted, it would be possible for one or two of the roads, by building short links, to cut out one or two of the other roads and shorten the distance for through travel very materially. After they have all consolidated they will not care about that, as any short cut will then be for the advantage of the consolidated line.

"The arguments of Colonel John H. George, Counsel of the Boston & Lowell Railroad, before the Committee, presented very fully the views of those who oppose the present bill on the grounds stated above and in favor of what they believe to be the true railway policy of New Hampshire. In the course of these arguments and of his testimony as a witness he had one or two quite sharp, though good-tempered, passages at arms with Chairman Quint, of the committee, in one of which he made a good point on the Chairman, who took occasion, in questioning another witness in favor of the proposed Forest Line road, to speak of the proposition to allow that road, when built, to be leased by a foreign corporation—presumably the Boston & Lowell or the Central Vermont—as a reversal of the policy of the state in this regard. Colonel George called Dr. Quint's attention politely to the fact that he had doubtless forgotten the lease of the Eastern Railroad in New Hampshire and the Portsmouth, Great Falls & Conway to the Eastern Railroad of Massachusetts; the lease of the Nashua & Lowell to the Boston & Lowell, and many other similar leases—in fact, that for every mile of road in New Hampshire leased to a New Hampshire corporation, there are at least eight miles leased to these so-called foreign corporations. That Dr. Quint appreciated the sharpness of the hit was shown by his epigrammatic remark an evening or two since, in the course of his opening speech on the railroad question, that the Lake Shore project was defeated two years ago, the Boston & Lowell Railway, through Colonel George, furnishing the brains, the Concord Railroad the money, and the Boston, Concord & Montreal Railroad the humbug."

New York & Long Branch.—In the suit brought to restrain the Central Railroad Co., of New Jersey, from interfering with the use of this road by the Pennsylvania Railroad Co., in the United States Circuit Court in Trenton, N. J., Aug. 17, counsel for the Pennsylvania filed an amended bill and complaint. This bill sets forth that the contract of Jan 3, 1882—the one on which the complainants base their rights to use the road and which they seek to defend from violation by the defendants—provided that for the purpose of enabling the New York & Long Branch Co. to pay its indebtedness to the New Jersey Central and for the purpose of laying a steel-rail double track upon its road and putting the same in first-class condition, it would be necessary to borrow $1,500,000, and to enable it to do so it had to make a mortgage to secure bonds which were to be issued. It was agreed that a fund of $206,000 yearly should be guaranteed to the New York & Long Branch Co., to pay expenses and interest on the bonds by the Pennsylvania and New Jersey Central companies; also, that they should throw all the business in their control over the Long Branch road, and, further, that they would not construct any competing road. In order to comply with the condition insisted upon by Drexel & Co., of Philadelphia, for the protection of the purchasers of the bonds the three companies agreed to the terms above mentioned. The bill further sets forth that, relying upon the guarantees and pledges in the contracts, the bonds were issued and the mortgage was delivered to the Central Trust Co., of New York, as trustee. It is also alleged in the bill and supported by an affidavit of Anthony J. Drexel, which is attached, that the loan was made with the express understanding that the New York & Long Branch Railroad was to be open to the traffic of the Pennsylvania Railroad Co., and it was upon the faith of that agreement that Drexel & Co. advanced the money and received the bonds, a large number of which have been sold by them to *bona fide* purchasers. The money realized was used for the purposes for which it was borrowed, viz., to pay $800,000 debt to the Central Railroad of New Jersey, and the balance in laying the double track and improving the road of the New York & Long Branch Co. The insistment of the amended bill is that by force of the contract the parties thereto are equitably estopped from changing or in any wise altering any of the terms of the agreement except in conformity to its provisions and from in any wise questioning or avoiding the same or impairing the validity thereof. Judge Nixon made an order that the New Jersey Central and Long Branch railroad companies shall answer the amended bill on or before Monday, Sept. 3.

New York & New England.—Rumors that this road was to be leased to the New York, New Haven & Hartford Co. have been pronounced without foundation by officers of both companies.

New York, West Shore & Buffalo.—The latest timetable of the Hudson River Division shows four through passenger trains each way between New York and Albany; two trains between New York and Kingston; four between New York and Cornwall; one between New York and Haverstraw, and two local trains between Newburg and Albany, a total of 13 passenger trains. The passenger business is already large. On the Wallkill Valley road, which is now operated by this company, there are four trains each way between Montgomery and Kingston. Not very fast time is made yet, the quicket time between New York and Albany taking 5½ hours, the speed being 26 mile an hour. The fast trains will come later.

The following statement was recently made of the sources from which cash has been obtained for the construction and equipment of this road:

Ontario & Western Co.—For use, to the extent necessary in completing its contract for the construction of the West Shore Railway, between Weehawken and Cornwall, 52 miles of double track, and to Middletown, 25 miles of single track, reconstruction fund, $10,000,000; sales to Ontario & Western stockholders of the $10,000,000 bonds paid by the West Shore Co. to the Ontario & Western Co. under its construction contract, $5,000,000, a total of $15,000,000.

North River Construction Co.—Capital stock full paid, $10,000,000; subscription to about $15,000,000 West Shore bonds at par, $15,000,000, a total of $25,000,000.

Winslow, Lanier & Co. contract.—Of this sum an amount has been reserved by Winslow, Lanier & Co., deemed amply sufficient by their expert engineer for the completion of the bond between Syracuse and Buffalo. The bond interest maturing next January has also been reserved from this sum. The total amount under this contract is $15,000,000.

This makes a total of $55,000,000 cash furnished from these three sources for the construction of the road.

Northern Pacific.—A large grain elevator is to be built at once at the terminus at Portland, Or., by the Terminal Co.

Work is progressing actively on the new shops at Fargo, Dak., where both car and locomotive repair shops are nearly finished. The yard at that point is being enlarged, and a new bridge built over the Red River.

On the National Park Branch the track is now laid to Yellowstone, 57 miles southward from the main line at Livingston, Montana, which is to be the terminus.

Oregon Railway & Navigation Co.—In the United States Circuit Court in New York, Aug. 16, a bill of complaint was filed by Spencer Erwin, Jay Cooke, Jr., E. C. Weaver, of Philadelphia, the Trenton Banking Co. of Trenton, N. J., James A. Williams of Connecticut, and other residents of Pennsylvania, New Jersey and Connecticut, stockholders of the Oregon Steam Navigation Co., against the Oregon Railway & Navigation Co. and Henry Villard. The bill sets forth that the Oregon Steam Navigation Co. had, previously to 1879, carried on business for nearly 20 years, having a capital stock of the par value of $5,000,000, on which it paid dividends. The company owned and operated steamboats and barges on the Columbia River, and controlled the inland system of navigation in the state of Oregon and in Washington territory. The bill also recites that in 1879, a corporation known as the Oregon Steamship Co, operated a line of steamers between San Francisco, California, and Portland, Oregon. The latter company became embarrassed in 1874, and Henry Villard was put in control of it by the creditors. The nominal capital of the Oregon Steamship Co. was $1,000,000, and, as is alleged, there were also outstanding bonds of the par value of $2,000,000, which its creditors held as collateral security for an indebtedness of $1,200,000. It is alleged that while Villard was in charge of the company no interest was paid on its bonds, or dividends upon its stock. It is also alleged that, early in 1879, Villard and others, calling themselves a syndicate, bought the Oregon Steamship Co.'s properties at a low figure, Villard acquiring $200,000 of the company's capital stock. The bill further sets forth that in May, 1879, Villard concluded a negotiation with S. J. Ainsworth, President of the Oregon Steam Navigation Co. This contract provided that Ainsworth should sell to Villard a controlling interest of the total 50,000 shares of the Oregon Steam Navigation Co. It is also alleged that in May, 1879, Villard formed a corporation known as the Oregon Railway & Navigation Co., with a capital stock of $6,000,000, the articles fixing the right to purchase and consolidate the other companies above mentioned. After considerable negotiation this consolidation was effected, and the two companies were merged in the defendant corporation. The complaint prays for an accounting and also an injunction restraining the defendants from selling, transferring, or disposing of any of the rights or properties of the Oregon Steam Navigation Co.; what further relief is desired does not appear.

This company has finally decided to adopt for its Moscow Branch the line as located through Colfax, Washington Ter., although some heavy work will be required. Grading parties are now at work between Rebel Flat and Colfax. Track on this branch is now laid for 44 miles eastward from Palouse Junction on the Northern Pacific, and work is progressing steadily toward Palouse.

Pennsylvania.—Contracts have been let this week for grading on the new line to Reading as follows: Monocacy to Robeson, 4 miles, to Keller, Bush & Cressent, of Slatington, Pa.; Robeson to Naomi, 3 miles, to Wm. Hawman, of Reading; Naomi to Reading, 4 miles, to Nolan & O'Reilly, of Reading. Nearly all the contracts on this line have now been let, except for work in the city of Reading and the bridge over the Schuylkill River.

Pennsylvania, Slatington & New England.—The sheriff of Northampton County, Pa., has levied on the property of this company in the county, to satisfy a number of executions issued under judgments sued out by employés for unpaid wages.

Pittsburgh, McKeesport & Youghiogheny.—The tunnel in Pittsburgh, through which this road connects with the Pittsburgh & Lake Erie road, is now completed. It has been an expensive and difficult work; a detailed account of it will be found elsewhere. The track is now all

laid from the Lake Erie junction in Pittsburgh to McKeesport, 16 miles, and work is progressing rapidly at other points.

Rochester & Pittsburgh.—The Buffalo *Express* says: "The Rochester & Pittsburgh Co. has three of its canal steamers finished, the 'Bradford,' 'Ridgway,' and 'Ashford,' though only the former has yet made a trip to tidewater. In addition to these there are two more on the stocks in Notter's yard at the foot of Virginia street, which will be out in perhaps two weeks. As soon as finished they are taken to Lockport for their machinery. It is understood that Mr. Notter has a contract for building as many as can be put together during the season. Mr. G. A. Albertson, who was at one time Superintendent of the canal-boat line for the road, has resigned, and is to take command of the 'Ashford,' the third steamer built this season. The line is now under the management of Mr. G. M. Rolands, Secretary of the company."

These canal steamers are to be used chiefly for carrying coal from Buffalo.

Southeastern, of Canada.—Nothing further of importance has been made public as to the affairs of this company. The syndicate referred to last week has not yet announced its intentions as to the purchase of the road, and may not for two or three weeks, as its option to buy extended over 30 days. The representatives of the syndicate are said to have made a very favorable report as to the condition of the property.

Sparta & Tilden.—Contracts were to be let this week for the building of this road from Sparta, Ill., north to Tilden on the St. Louis, Alton & Terre Haute road. The distance is about 6 miles.

Telegraph Operators' Strike.—The strike of the telegraph operators came fairly to an end on Aug. 17, when the leaders acknowledged their defeat, and the operators were advised to make what terms they could with the companies. In New York and elsewhere a large number have been taken back by the Western Union Co., and others will probably be taken on in a short time, some being refused because there were no vacancies, while a few have thought it best to seek employment in other branches of business. The Western Union, however, has refused to take back any of the linemen who struck, probably for the reason that some of them are suspected of cutting wires. The Baltimore & Ohio operators have generally gone back to their old positions.

The causes which have lead to the failure have been sufficiently referred to elsewhere, and it is not necessary to speak of them here. The strike has been a complete failure, and it is not probable that another one will be attempted soon.

Toledo, Cincinnati & St. Louis.—The Court has authorized the Receiver to borrow $94,000, and to issue certificates to that amount, bearing 6 per cent. interest and payable in 18 months. The money is to be used to pay wages due to employés of the road, who have not yet been paid for June.

The holders of Iron Railroad bonds are arranging to take action for a separate foreclosure of their mortgage, and to break up the consolidation of the road with this company. The Iron Railroad is only 13 miles long, but it was always considered a godd property before it passed under this company's control.

Western & Atlantic.—Atlanta dispatches report that a plan is under consideration for the purchase of this road from the state of Georgia by a company composed chiefly of the present lessees, in which the Central Railroad Co. will have a controlling interest. Two objects are to be gained—the permanent control of the road by the Central, and the cessation of the attacks upon the lease which are made at every session of the Legislature. It is thought, also, that the sale can be arranged in such a way that the state will be financially profited, while at the same time the price paid will be reasonable. It will hardly be possible to pass a bill through the Legislature at its present session providing for the sale.

ANNUAL REPORTS.

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Wilmington & Northern.

This company owns a line from Wilmington, Del., to High's Junction, Pa., 70.5 miles; the French Creek Branch, from Springfield, Pa., to St. Peter's, 5.9 miles; the Rockland Mill Branch, from Dupont, Del., to Rockland, 1 mile; the Christiana Avenue Branch in Wilmington, 1.87 miles, and the Delaware Extension, from Wilmington to the Delaware River, 3.5 miles; a total of 82.77 miles. It also leases the use of the Schuylkill & Lehigh track from High's Junction into Reading, 2.418 miles.

The equipment consists of 16 locomotives; 8 passenger and 5 baggage and smoking cars; 46 box, 1 stock, 6 lime, 62 gondola and 5 caboose cars; 13 service cars.

The general account is as follows, condensed:

Stock		$1,278,050 00
Funded debt		150,500 00
Accounts and balances		47,203.79
Profit and loss		170,634.47
Total		$1,655,388.26
Road and equipment	$1,588,813 52	
Materials	10,987.39	
Accounts and balances	42,237.44	
Cash	13,349.91	
		$1,655,388.26

The funded debt consists of $100,000 Delaware Extension bonds; $50,000 branch bonds, and $9,500 bonds and mortgages. During the year $41,000 extension bonds were sold, and $4,200 branch bonds were paid off.

The traffic for the year was as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Locomotive miles	370,267	314,794	I. 55,503	17.6
Passengers carried	191,058	154,730	I. 36,328	23.4
Passenger-miles	2,282,557	1,732,270	I. 550,287	31.8
Tons freight carried	537,917	460,449	I. 77,468	16.8
Ton-miles	12,870,731	12,611,916	I. 258,815	2.1
Av. receipt:				
Per pass.-mile	2.64 cts.	2.87 cts.	D. 0.23 ct.	8.0
Per ton-mile	2.11 "	2.13 "	D. 0.02 "	0.9

The cost of running passenger trains was 39.86 cents per mile; freight trains, 96.06 cents. The average passenger train was 2 cars; the average freight train, 30 cars.

The earnings for the year were as follows:

	1882.	1881.	Inc. or Dec.	P.c.
Freight trains	$271,095	$268,304	I. $2,791	1.0
Passenger trains	66,920	55,862	I. 11,058	19.8
Miscellaneous	1,077	846	I. 231	27.3
Total	$339,092	$325,012	I. $14,080	4.3
Expenses	268,685	258,247	I. 10,438	4.0
Net earnings	$70,407	$66,765	I. $3,642	5.4
Gross earn. per mile	4,364	4,199	I. 165	3.9
Net " " "	906	863	I. 43	5.0
Per cent. of exps.	79.24	79.46	D. 0.22	....

Passenger train earnings include receipts from mail and express and from milk and market freight carried on passenger trains. Taxes are included in expenses.

The income account is as follows:

Net earnings, as above		$70,407.14
Interest and redemption of bonds		12,091.38
Surplus for the year		$58,315.76
Real estate and right of way	$7,014.10	
New construction	35,907.27	
New equipment	17,682.17	
		$60,603.54
Excess of payments		$2,287.78

The surplus over interest and redemption of bonds was equivalent to 4.56 per cent. on the stock. The cost of the Delaware River Extension is not included in the new construction above, having been provided for by the sale of bonds.

There were 801 tons of steel rails and 20,758 new ties used in renewals and charged in expenses.

The extension to the Delaware River was completed in December, the 3.5 miles costing $94,510.40, or $27,003 per mile, which is very moderate, considering the heavy cost of some of the right of way. The Christiana Avenue Branch was completed in October, the 1.87 miles costing $20,321.27, or $10,867 per mile. This line gives the road access to a number of large factories. During the current year the Delaware River line has been of much use for freight, and in the summer for passenger trains which carry excursions to Cape May and other points, connecting with steamboats on the Delaware.

The road and equipment received full repairs and are in excellent condition.

Atlanta & West Point.

This company operates a line 87 miles long, from Atlanta, Ga., to West Point. Of this it owns 81 miles, and leases the use of 6 miles, from Atlanta to East Point. The report is for the year ending June 30.

The company has no funded debt. It has $1,232,200 stock and $1,232,200 debenture certificates, bearing 6 per cent. interest, which were issued to stockholders as a dividend in 1881.

The earnings for the year were as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c
Freight	$212,565	$231,900	D. $19,335	8.3
Passage	154,959	163,320	D. 8,361	5.1
Mail, etc	38,668	34,790	I. 3,878	11.1
Total	$406,192	$430,010	D. $23,818	5.5
Expenses	251,381	254,516	D. 3,135	1.3
Net earnings	$154,811	$175,494	D. $20,683	11.8
Gross earn. per mile	4,669	4,943	D. 274	5.5
Net " " "	1,779	2,017	D. 238	11.8
Per cent. of expenses	61.89	59.20	I. 2.69	....

The small decrease in expenses was not enough to offset the decrease in net earnings.

The result of the year is as follows:

Net earnings, as above		$154,810.80
Interest paid	$73,932	
Dividends, 6½ per cent	80,093	
		154,025.00
Surplus for the year		$785.80

President Grant's report says that, as compared with the previous year, the report shows a decrease in revenue from freight of $19,335. This result was predicted last year and is due to the heavy grain crops, which diminished the bulk of freight from the west. The passenger business shows a falling off of $8,362, but this is really an increase, for the previous year included the $28,000 passenger fares realized on account of the Cotton Exposition.

There are 38½ miles of iron on the road, but this is being rapidly replace by the best steel rails. It is not probable that steel rails will rule lower than at present, and it is estimated that in four years the iron can be completely replaced by steel without increasing the current annual expense account. When that is done the present expense of maintenance will be decreased about $22,000 a year.

The report recommends the building of a new depot at West Point for the joint use of this road and the Western Railroad of Alabama. It also favors a consolidation of the freight depots of the West Point and Central railroads in Atlanta as a matter of convenience and because it would relieve the Georgia Railroad of the pressure on its space east of the passenger depot.

Appropriate allusion is made to the death of Colonel Wadley, one of the firmest friends of the road, and of Mr. A. J. Berry, one of its first directors.

West Jersey.

This company at the close of its last fiscal year, Dec. 31, 1882, owned and operated the following lines:

	Miles.
West Jersey, Camden, N. J., to Cape May	82.47
" " Glassboro to Bridgeton	18.60
" " Junction to Sea Island City	5.00
Swedesboro R. R., Woodbury to Swedesboro	10.80
Salem R. R., Elmer to Salem	17.22
West Jersey & Atlantic, Newfield to Atlantic City	34.46
" " Pleasantville to Ocean City	7.00
Total	175.55

Additions during the year were the extension of the Salem road 0.64 mile into Salem; the Sea Island City Branch, finished in June; and the Ocean City Branch, which was acquired in June and was consolidated with the West Jersey & Atlantic Co. as of Jan. 1, 1883.

Since the close of the year the Woodstown & Swedesboro road, from Swedesboro to Oakland, 11.50 miles, has been completed, and is now operated by this company.

There are on the main line 18.6 miles of second track, 7.6 miles having been added last year. There are 66.77 miles of track laid with steel rails.

The equipment consists of 25 locomotives; 68 passenger and 6 baggage cars; 33 box, 2 stock, 69 flat, 90 dump and 6 caboose cars; 32 hand and 30 truck cars. Additions during the year were 2 locomotives, 7 box cars, 16 hand and 10 truck cars.

The general account is as follows:

Stock		$1,377,750.00
Bonds		2,748,500.00
Certificates of debt for Cape May & Mill. stock		6,400.00
Accounts and balances		164,507.44
Profit and loss		204,821.62
Total		$4,501,979.06
Road and property	$3,380,940.72	
Stocks of leased lines	479,789.94	
Stockton Hotel, Cape May	250,000.00	
Sinking funds	206,250.00	
Accounts	88,566.00	
Materials	52,686.35	
Cash	43,746.05	
		4,501,979.06

Stock was increased $18,000 during the year and the bonded debt decreased $7,000. The funded debt consists of $292,000 bonds due 1883; $1,000,000 due 1896; $1,000,000 due 1899, and $456,500 due 1909. All bear 6 per cent. interest except the bonds of 1899, which are 7 per cent., the interest charge being $174,910 yearly.

The traffic for the year was as follows:

Train miles:	1882.	1881.	Inc. or Dec.	P. c.
Passenger	600,502	501,906	I. 98,596	19.6
Freight	175,834	148,686	I. 27,148	18.2
Service	27,690	19,778	I. 7,912	39.9
Total	804,026	670,370	I. 133,656	19.9
Car miles:				
Passenger train	2,475,927	2,082,251	I. 393,676	18.9
Freight	2,377,106	1,848,365	I. 528,741	28.6
Total	4,853,033	3,930,616	I. 922,417	23.4
Passengers carried	1,542,487	1,238,132	I. 304,355	24.6
Passenger miles	52,545,479	42,550,400	I. 9,995,079	23.5
Tons freight carried	317,664	276,807	I. 40,857	14.8
Ton-miles	10,983,344	9,046,582	D. 1,936,762	21.4
Av. receipts:				
Per pass.-mile	1.34 cts.	1.44 cts.	D. 0.10 ct.	6.9
" " net	0.40 "	0.43 "	D. 0.03 "	7.0
Per ton.-mile	2.69 "	3.07 "	D. 0.38 "	12.4
" " net	1.22 "	1.65 "	D. 0.43 "	26.1

The low average passenger rate is due to the large number of excursion passengers carried at very low rates.

The earnings for the year were as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Passengers	$709,017	$621,516	I. $87,501	14.1
Freight	306,788	289,475	I. 17,313	6.0
Mail, etc	93,605	77,535	I. 16,070	20.7
Total	$1,109,410	$988,526	I. $120,884	12.2
Expenses	654,744	560,954	I. 93,790	16.5
Net earnings	$454,666	$427,572	I. $27,094	6.3
Gross earn. per mile	6,408	6,068	I. 340	5.6
Net " "	2,674	2,625	I. 49	1.9
Per cent. of exps.	59.01	56.75	I. 2.26	....

Expenses include 1,034 tons of steel rails and 40,128 ties used in renewals, besides extensive repairs to road-bed, buildings and equipment.

The division of earnings among the several lines was as follows:

	Gross earn.	Net earn.	Per ct. of exp.
West Jersey	$884,723	$388,088	56.13
Swedesboro	22,179	5,413	75.59
Salem	34,684	3,390	90.23
West Jersey & Atlantic	162,540	57,408	64.68
Pleasantville & Ocean City	5,284	367	93.05
Total	$1,109,410	$454,666	59.01

The Pleasantville & Ocean City line was worked six months only. The net earnings of the West Jersey & Atlantic road are paid over to that company as rental.

The income and profit and loss statement is as follows:

Net earnings, as above		$454,666.47
Rentals	$90,869.56	
Interest	177,117.63	
Dividends, 6 per cent	82,807.50	
		350,734 69
Surplus for the year		$103,931.78
Extensions and additions to property		45,856.89
Balance		$58,074.89
Premiums		1,164.35
Balance, Jan. 1, 1882		145,582.38
Balance, Jan. 1, 1883		$204,821.62

One dividend of 3 per cent. was paid in stock, and one of 3 per cent. in cash.

The Sea Island City Branch was graded by parties interested, this company furnishing the iron. The traffic brought to the main line for the six months it was worked is regarded as satisfactory.

The addition of the Ocean City Branch is expected to increase materially the business of the West Jersey & Atlantic road.

The completion of the Woodstown & Swedesboro road is expected to make the Swedesboro Branch profitable, and to bring considerable new business to the road.

There were 718 tons of steel rails and 31,692 new ties used in construction, chiefly in extension of the second track, iron rails being used for the branches.